

MATH 7



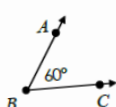
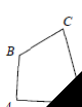
PREVIEW

GEOMETRY

NOTES • HOMEWORK • QUIZZES • TEST

Created by: ALL THINGS ALGEBRA®

Topic: _____ Name: _____ Class: _____

Main Ideas/Questions	Notes/Examples				
ANGLES 	Parts of an Angle: - An angle is formed by two rays that share a common endpoint. - The common endpoint is called the vertex. - The rays are called the sides of the angle. Naming Angles: - Symbol for an angle is $\angle$. - Angles are typically named by a letter or a number. - Angles can also be named by a point on each ray and the vertex. Angle Measures:				
ADJACENT ANGLES	Adjacent angles are two angles that share a common vertex and a common side. They are _____ each other. Examples: Vertical angles are two angles that are opposite each other.				
CONSTRUCTING TRIANGLES	Directions: Construct a triangle with side lengths of 3 cm, 4 cm, and 5 cm. Directions: Using a protractor, construct an angle of 30°.				
QUADRILATERALS 	A quadrilateral is a polygon with four sides and four vertices. Directions: Find each interior angle of a quadrilateral with interior angles of 117°, 88°, 73°, and 2°.				
POLYGON	A polygon is a closed figure formed by three or more line segments. <table border="1"><thead><tr><th>POLYGON</th><th>NOT POLYGONS</th></tr></thead><tbody><tr><td></td><td></td></tr></tbody></table> Polygons can be classified by the number of sides they have. Complete the table below.	POLYGON	NOT POLYGONS		
POLYGON	NOT POLYGONS				
					



Thank you SO MUCH

for purchasing this resource!

If you have any questions or comments, please email me at allthingsalgebra@gmail.com.

Visit www.allthingsalgebra.com for more resources like this!

Let's Stay Connected!



[Join the All Things Algebra® Facebook Community!](#)

TERMS OF USE

© 2015-2026 Gina Wilson (All Things Algebra®)

LICENSING TERMS:

This resource is licensed for use by the individual teacher to whom the license is assigned. It may not be shared with other teachers, departments, schools, or districts. Each teacher using the resource must purchase their own license.

Non-transferable licenses are owned by the purchaser or the teacher for whom they were purchased and are not to be shared. Transferable licenses are school-owned and may be reassigned to another teacher as staffing changes. To request a license transfer, please contact schools@allthingsalgebra.com.

For schools or districts interested in purchasing transferable licenses to accommodate multiple teachers, they may contact schools@allthingsalgebra.com for a quote.

COPYRIGHT TERMS:

No part of this resource may be uploaded or shared online, including on classroom or personal websites, network drives, or shared folders, unless access is password-protected and restricted to students only. Any videos featuring this material must also be accessible only to your students. This resource is for personal classroom use only. Creating derivative works is prohibited.

Thank you for respecting my work!



Unit 6 - Geometry: Sample Unit Outline

	TOPIC	HOMEWORK
DAY 1	Classifying, Measuring, and Constructing Angles	HW #1
DAY 2	Adjacent and Vertical Angles	HW #2
DAY 3	Complementary and Supplementary Angles	HW #3
DAY 4	Angles Relationships Review	HW #4
DAY 5	Quiz 6-1	
DAY 6	Classifying Triangles/Triangle Sum Theorem	HW #5
DAY 7	Constructing Triangles	HW #6
DAY 8	Quadrilaterals	HW #7
DAY 9	Quiz 6-2	None
DAY 10	Congruent Polygons	HW #8
DAY 11	Translations	HW #9
DAY 12	Reflections	HW #10
DAY 13	Quiz 6-3	None
DAY 14	Review	Study for Test
DAY 15	UNIT TEST	None
ADDITIONAL RESOURCES: Video Lessons & Google Slides Suggested Activities		

Name: _____

Date: _____

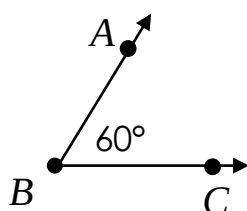
Topic: _____

Class: _____

Main Ideas/Questions

Notes/Examples

ANGLES



Parts of an Angle:

- An angle is formed by two _____ with a common endpoint.
- This common endpoint is called the _____.
- The rays are called the _____.

Naming Angles:

- Symbol for an angle: _____
- Angles are typically named using _____ letters.
*The _____ letter must always represent the _____.
- Angles can also be named using just the vertex if it is the only angle located at that vertex.

Angle Measures:

- When referring to the measure of an angle, use a lowercase _____.

Example: _____

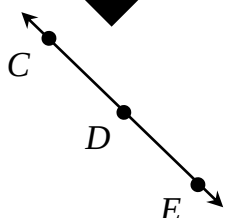
TYPES OF ANGLES

Example 1:



- Name the vertex of the angle. _____
- Name the sides of the angle. _____
- Give three ways to name the angle.
_____, _____, _____
- Classify the angle: _____

Example 2:

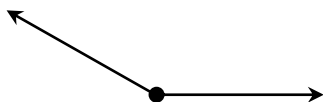


- Name the vertex of the angle. _____
- Name the sides of the angle. _____
- Give three ways to name the angle.
_____, _____, _____
- Classify the angle: _____

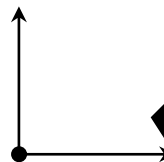
USING A PROTRACTOR

Directions: Use a protractor to find the measure of each angle. Then, classify the angle as acute, obtuse, right or straight.

3.



4.



5.



6.



Directions: Use a protractor to draw angles with the given measurements. Then, classify the angle as acute, obtuse, right or straight.

7. 60°

8. 140°

9. 90°

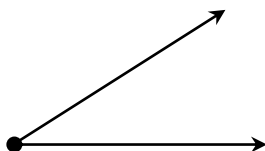
CONGRUENT ANGLES

Directions: Using a protractor, construct an angle congruent to each given angle.

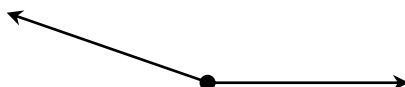
10.



11.



12.



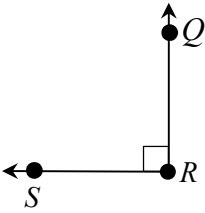
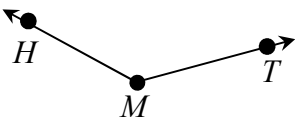
Name: _____

Unit 6: Geometry

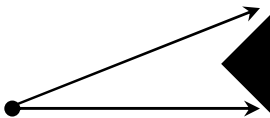
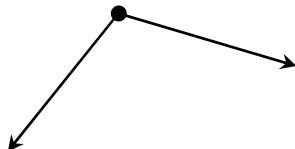
Date: _____ Per: _____

Homework 1: Introduction to Angles

Directions: For each angle, a) name the vertex, b) name the sides, c) name the angle three ways, and d) classify the angle.

1. 	a) Name the vertex of the angle. _____ b) Name the sides of the angle. _____ c) Give three ways to name the angle. _____, _____, _____ d) Classify the angle: _____
2. 	a) Name the vertex of the angle. _____ b) Name the sides of the angle. _____ c) Give three ways to name the angle. _____, _____, _____ d) Classify the angle: _____

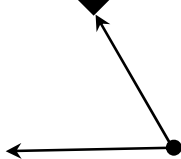
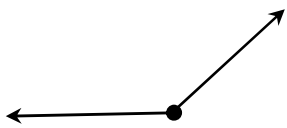
Directions: Use a protractor to find the measure of each angle. Then, classify the angle as acute, obtuse, right or straight.

3. 	5. 
---	---

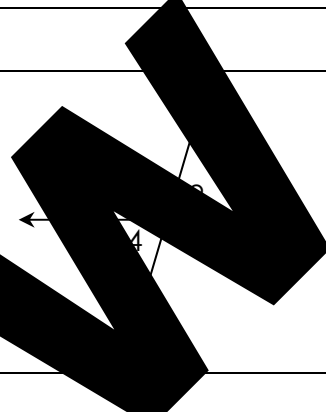
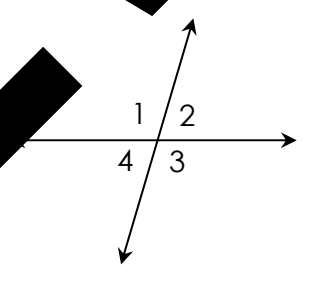
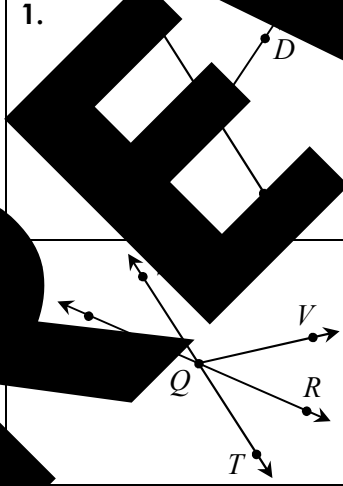
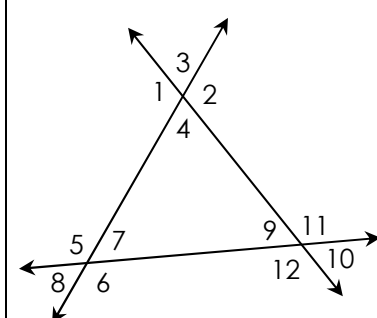
Directions: Use a protractor to draw angles with the given measurements. Then, classify the angle as acute, obtuse, right or straight.

6. 65°	7. 140°	8. 90°
---------------------------------	----------------------------------	---------------------------------

Directions: Using a protractor, construct an angle congruent to each given angle.

9. 	10. 
---	---

Name:	Date:
Topic:	Class:

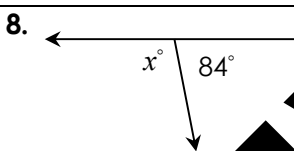
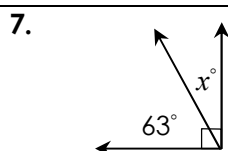
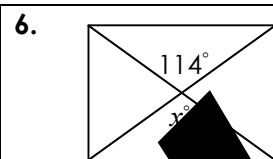
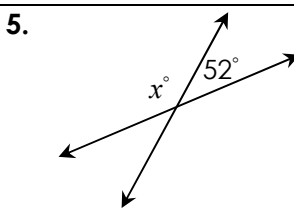
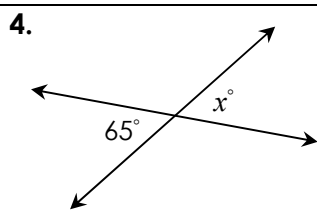
Main Ideas/Questions	Notes/Examples		
ADJACENT ANGLES	Adjacent angles are two angles that share a common _____ and _____. They are _____ each other.		
	Examples:		
VERTICAL ANGLES	Vertical angles are two angles that are _____ of each other when _____ lines intersect. Vertical angles are _____.		
	Examples:		
NAMING ANGLES	Directions: Look at the diagram and name two pairs of adjacent angles and two pairs of vertical angles.		
	1. _____ Adjacent Angles:		
		Vertical Angles:	
		Adjacent Angles:	
		Vertical Angles:	
	3. Given the diagram, classify each angle pair as vertical, adjacent, or neither.		
		a) $\angle 1$ and $\angle 4$	b) $\angle 7$ and $\angle 9$
		c) $\angle 5$ and $\angle 6$	d) $\angle 11$ and $\angle 12$
		e) $\angle 6$ and $\angle 7$	f) $\angle 4$ and $\angle 9$

FINDING ANGLE MEASURES

Recall

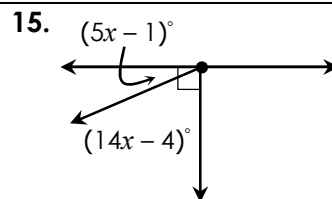
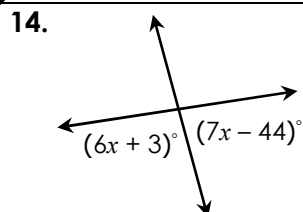
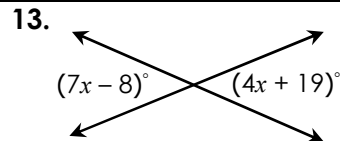
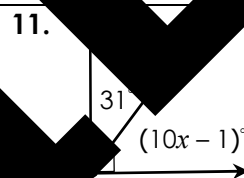
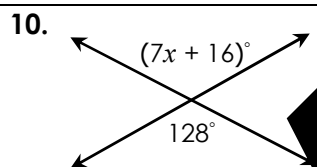
A right angle measures 90° and a straight angle measures 180° .

Directions: Tell whether the angles are adjacent or vertical, then find the value of x .



USING ALGEBRA

Directions: Tell whether the angles are adjacent or vertical, then find the value of x .



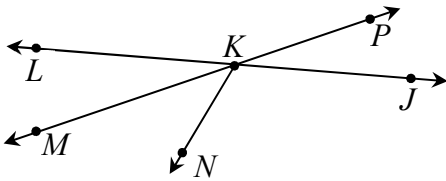
Name: _____

Unit 6: Geometry

Date: _____ Per: _____

Homework 2: Adjacent and Vertical Angles

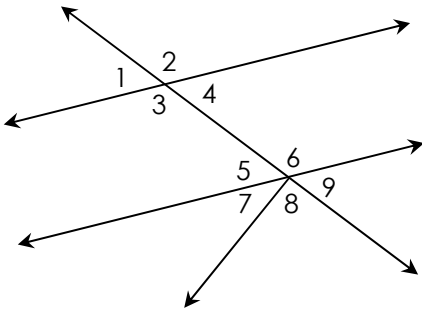
1. Using the diagram, name two pairs of adjacent angles and two pairs of vertical angles.



Adjacent Angles:

Vertical Angles:

2. Given the diagram, classify each angle pair as vertical, adjacent, or supplementary.



a) $\angle 4$ and $\angle 6$

b) $\angle 7$ and $\angle 9$

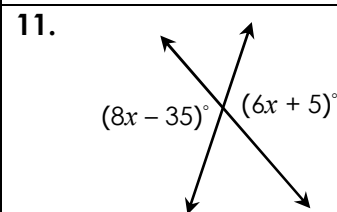
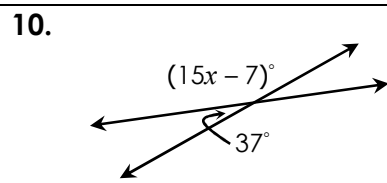
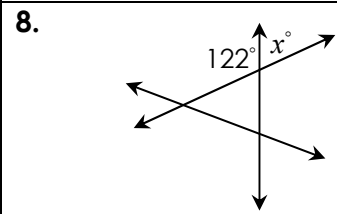
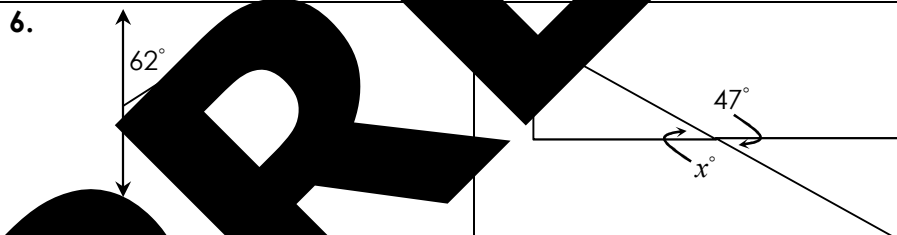
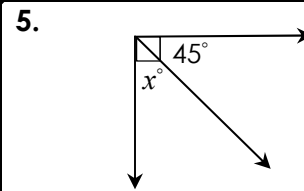
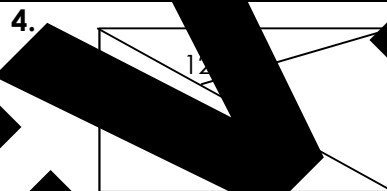
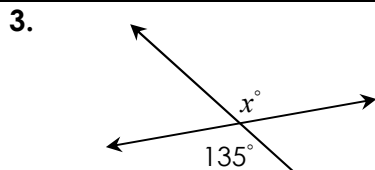
c) $\angle 2$ and $\angle 3$

d) $\angle 7$ and $\angle 6$

e) $\angle 1$ and $\angle 5$

f) $\angle 1$ and $\angle 9$

Directions: Tell whether the angles are adjacent, vertical, or supplementary. If they are adjacent, find the value of x .

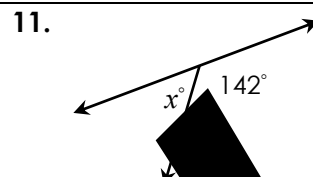
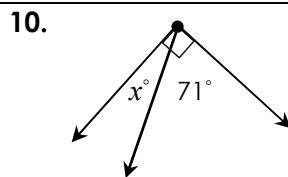
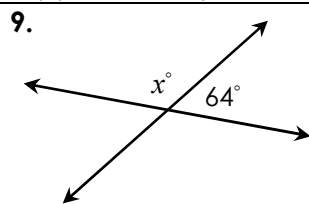


Name:	Date:
Topic:	Class:

Main Ideas/Questions	Notes/Examples		
COMPLEMENTARY ANGLES	Complementary angles are any two angles in which the _____ of their measures is _____.		
Supplementary angles are any two angles in which the _____ of their measures is _____.			
Complementary and supplementary angles have to be adjacent!			
EXAMPLES	1. Using the diagram, name two pairs of complementary angles and two pairs of supplementary angles.		
	Complementary Angles:		
	Supplementary Angles:		
	When the diagram, classify each angle pair as complementary, supplementary, or neither.		
		a) $\angle 1$ and $\angle 6$	
		b) $\angle 1$ and $\angle 2$	
		c) $\angle 4$ and $\angle 5$	
		d) $\angle 3$ and $\angle 4$	
Directions: Classify each pair of angles as complementary, supplementary, or neither.			
3.		4.	
		5.	
6.		7.	
		8.	

FINDING ANGLE MEASURES

For questions 9-11: Tell whether the angles are complementary or supplementary, then find the value of x .

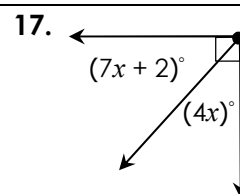
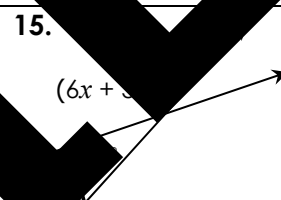
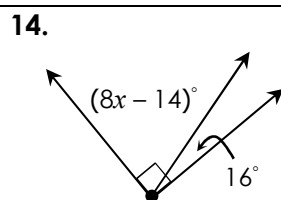


12. If $\angle A$ is supplementary to $\angle B$, and $m\angle A = 26^\circ$, find $m\angle B$.

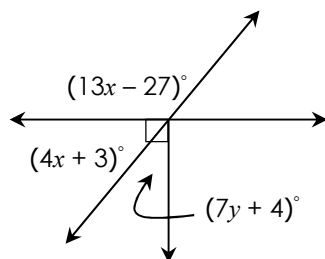
13. If $\angle G$ is complementary to $\angle H$, and $m\angle H = 63^\circ$, find $m\angle G$.

USING ALGEBRA

Directions: Tell whether the angles are complementary or supplementary, then find the value of x .



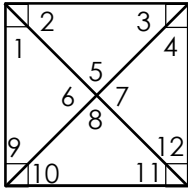
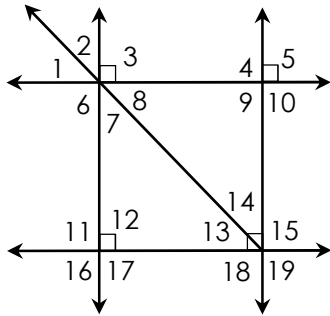
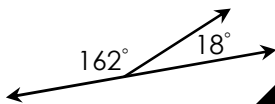
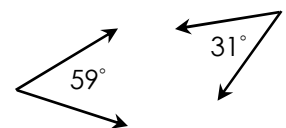
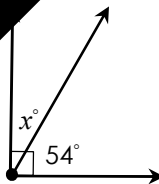
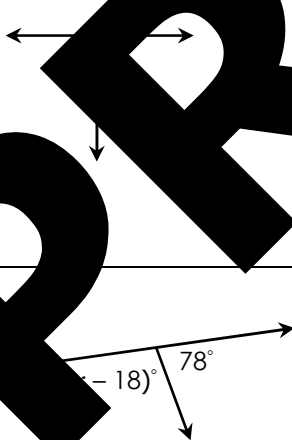
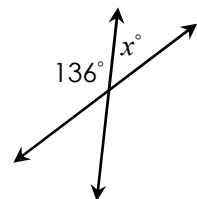
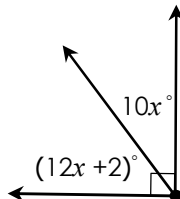
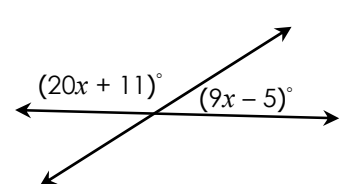
18. Find the value of x and the value of y .



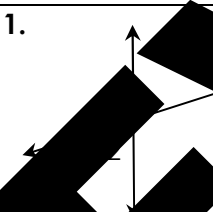
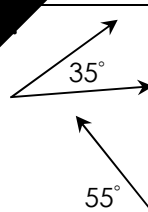
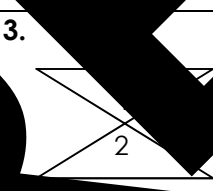
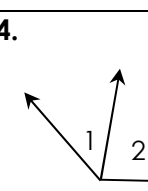
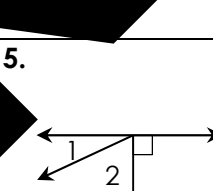
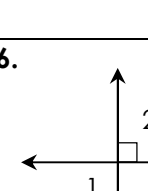
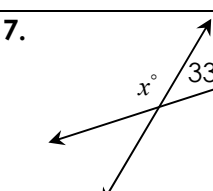
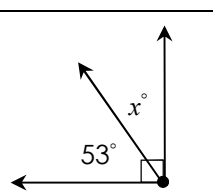
Name: _____

Unit 6: Geometry

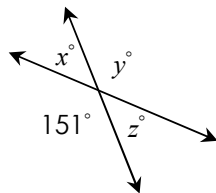
Date: _____ Per: _____

Homework 3: Complementary and Supplementary Angles**1.** Using the diagram, name two pairs of complementary and two pairs of supplementary angles.**Complementary Angles:****Supplementary Angles:****2.** Given the diagram, classify each angle pair as complementary, supplementary, or neither.**a)** $\angle 9$ and $\angle 10$ **b)** $\angle 7$ and $\angle 8$ **c)** $\angle 13$ and $\angle 14$ **d)** $\angle 6$ and $\angle 7$ **e)** $\angle 11$ and $\angle 17$ **f)** $\angle 12$ and $\angle 19$ **Directions:** Classify each pair of angles as complementary, supplementary, or neither.**3.****5.****Directions:** Tell whether the angles are complementary or supplementary, then find the value of x .**6.****8.****10.****11.**

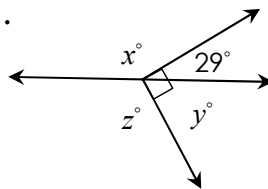
Name:	Date:
Topic:	Class:

Main Ideas/Questions	Notes/Examples	
ANGLE Relationships	Two angles that are next to each other and share a common side.	Two angles adjacent to each other on intersecting lines are always complementary .
	Two angles with a sum of 90°	Two angles with a sum of 180° .
Classifying ANGLES	Directions: Classify the angle pair using all terms that apply.	
	1. 	 ☐ Adjacent ☐ Vertical ☐ Complementary ☐ Supplementary ☐ Congruent
	3. 	 ☐ Adjacent ☐ Vertical ☐ Complementary ☐ Supplementary ☐ Congruent
Finding MEASURES	5. 	6.  ☐ Adjacent ☐ Vertical ☐ Complementary ☐ Supplementary ☐ Congruent
	Directions: Find each missing measure.	
	7. 	8. 

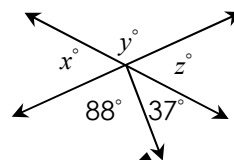
10.



11.



12.



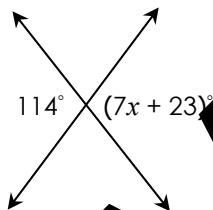
13. If $\angle R$ and $\angle S$ are complementary angles and $m\angle R = 15^\circ$, find $m\angle S$.

14. If $\angle 1$ and $\angle 2$ are vertical angles and $m\angle 2 = 115^\circ$, find $m\angle 1$.

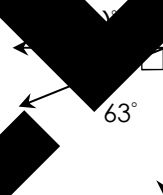
15. If $\angle C$ and $\angle D$ are supplementary angles and $m\angle D = 49^\circ$, find $m\angle C$.

Directions: Find the value of x .

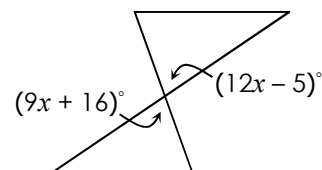
16.



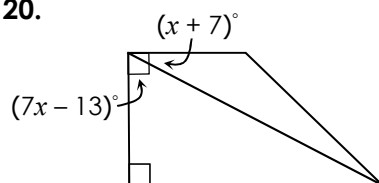
17.



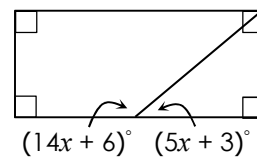
19.



20.



21.



Using
ALGEBRA

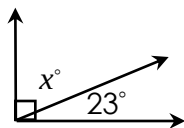
Angle Relationships Maze!

Directions: Begin at the **Start!** box. Find each missing measure.
Use your solutions to navigate through the maze.

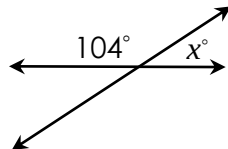
Start!

If $\angle 1$ and $\angle 2$ are vertical angles and $m\angle 2$ is 112° , find $m\angle 1$.

67°



76°



94°

86°

68°

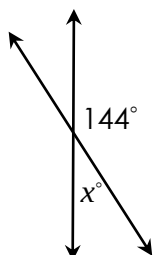
112°

57°

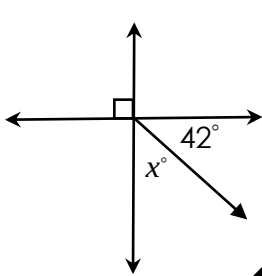
24°

160°

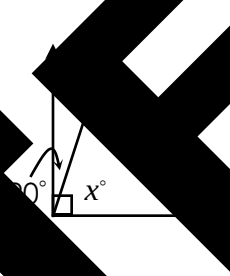
86°



48°



42°



16°

If $\angle C$ and $\angle D$ are complementary angles and $m\angle C$ is 13° , find $m\angle D$.

36°

89°

138°

13°

13°

39°

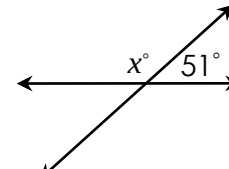
If $\angle A$ and $\angle B$ are supplementary angles and $m\angle A$ is 89° , find $m\angle B$.

101°

End!

If $\angle 3$ and $\angle 4$ are vertical angles and $m\angle 3$ is 47° , find $m\angle 4$.

129°



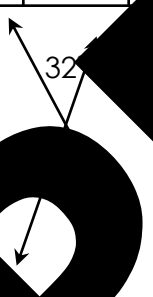
91°

133°

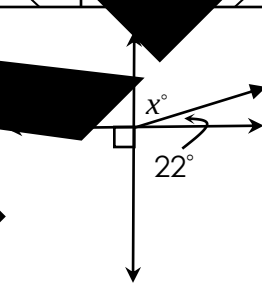
43°

6°

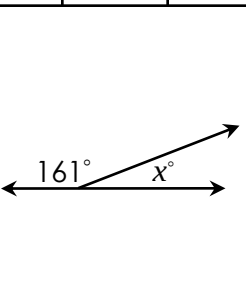
84°



152°



158°



174°

If $\angle M$ and $\angle N$ are complementary angles and $m\angle M$ is 6° , find $m\angle N$.

8°

68°

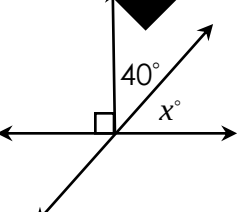
78°

114°

90°

66°

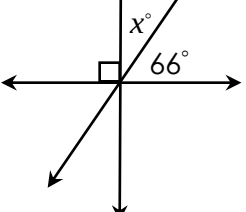
90°



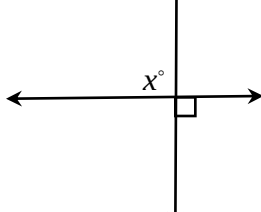
50°

If $\angle R$ and $\angle S$ are supplementary angles and $m\angle S$ is 12° , find $m\angle R$.

168°



24°



ANGLE RELATIONSHIPS RELAY PUZZLE

Directions: Beginning with the "Start" box, use the diagram to solve for x . Use the arrows to move through the page. Use the answer from the previous problem to fill in the box for the next problem. **STAPLE TO THE BACK OF THIS PAPER!**

Start! 1	 2	 3	 4
 8	 7	 6	 5
 9	 10	 11	 12
 16	 15	 14	 13

End!

Name: _____

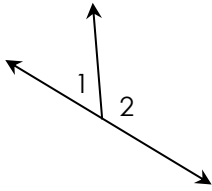
Unit 6: Geometry

Date: _____ Per: _____

Homework 4: Angle Relationships

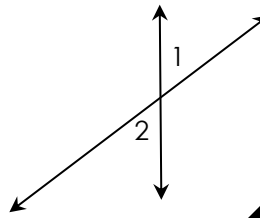
Directions: Classify the angle pair using all names that apply.

1.



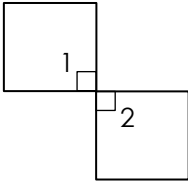
- ☐ Adjacent
☐ Vertical
☐ Complementary
☐ Supplementary
☐ Congruent

2.



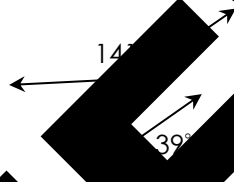
- ☐ Adjacent
☐ Vertical
☐ Complementary
☐ Supplementary
☐ Congruent

3.



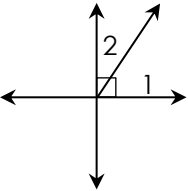
- ☐ Adjacent
☐ Vertical
☐ Complementary
☐ Supplementary
☐ Congruent

4.



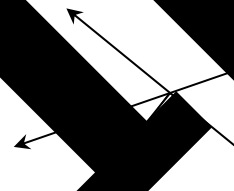
- ☐ Adjacent
☐ Vertical
☐ Complementary
☐ Supplementary
☐ Congruent

5.



- ☐ Adjacent
☐ Vertical
☐ Complementary
☐ Supplementary
☐ Congruent

6.



- ☐ Adjacent
☐ Vertical
☐ Complementary
☐ Supplementary
☐ Congruent

Directions: Determine whether the statement is always, sometimes or never true.

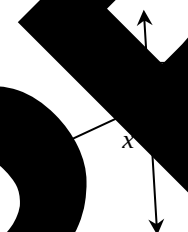
7. If two angles are vertical angles, then they share a common side. _____

8. Two angles with a sum of 90° are complementary angles. _____

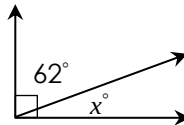
9. If two angles are supplementary, then they are right angles. _____

Directions: Find each missing measure.

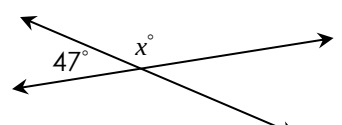
10.



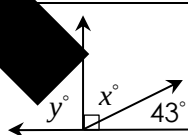
11.



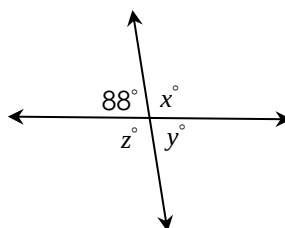
12.



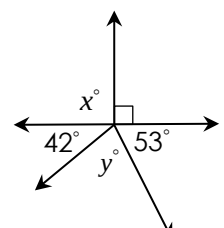
13.



14.



15.



Directions: Use your protractor to construct an angle with the given conditions.

16. If $m\angle A$ is 105° , construct an angle supplementary to $\angle A$.

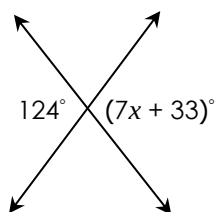
17. Construct a pair of vertical angles that are 60° .

18. If $m\angle S$ is 130° , construct an angle congruent to $\angle S$.

19. If $m\angle R$ is 25° , construct an angle complementary to $\angle R$.

Directions: Find the value of x .

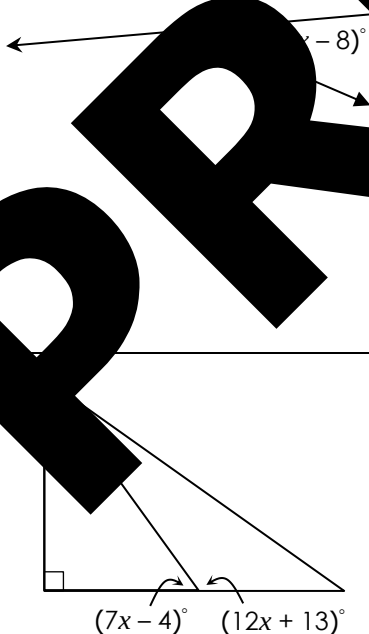
20.



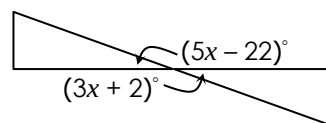
21.



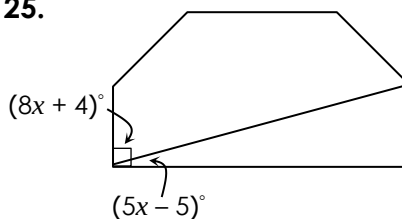
22.



23.



25.



Name: _____

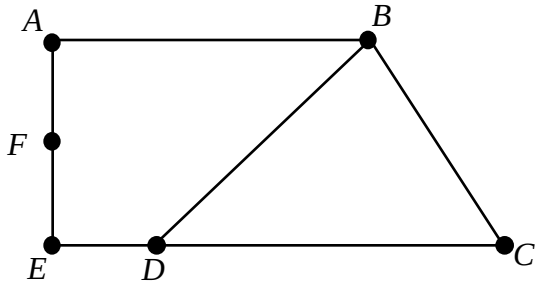
Math 7

Date: _____ Per: _____

Unit 6: Geometry

Quiz 6-1: Angles & Angle Relationships

Use the diagram below and a protractor, measure each angle below and classify it as acute, obtuse, right, or straight.



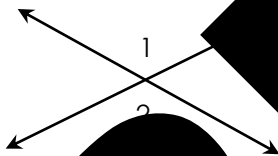
1. $m\angle EDB =$ _____; Classify: _____
2. $m\angle FED =$ _____; Classify: _____
3. $m\angle BCD =$ _____; Classify: _____
4. $m\angle AFE =$ _____; Classify: _____

Using a protractor, construct each angle with the given measure.

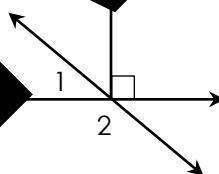
5. 35°
6. 128°

Classify each angle pair. List all names.

7.

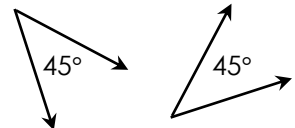


- ☐ Adjacent Angles
- ☐ Vertical Angles
- ☐ Complementary Angles
- ☐ Supplementary Angles
- ☐ Congruent Angles



- ☐ Adjacent Angles
- ☐ Vertical Angles
- ☐ Complementary Angles
- ☐ Supplementary Angles
- ☐ Congruent Angles

9.



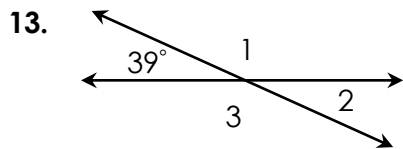
- ☐ Adjacent Angles
- ☐ Vertical Angles
- ☐ Complementary Angles
- ☐ Supplementary Angles
- ☐ Congruent Angles

Determine whether the statement is always, sometimes, or never true.

10. If two angles are congruent, then they are vertical angles.
11. Two right angles are complementary angles.
12. If an angle is acute, then its supplement angle is obtuse.

10. _____
11. _____
12. _____

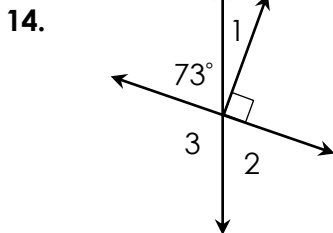
Find each measure. (Diagrams are not drawn to scale)



$$m\angle 1 = \underline{\hspace{2cm}}$$

$$m\angle 2 = \underline{\hspace{2cm}}$$

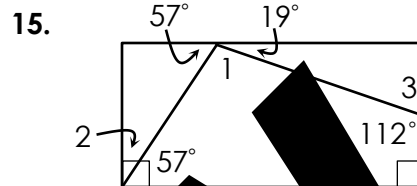
$$m\angle 3 = \underline{\hspace{2cm}}$$



$$m\angle 1 = \underline{\hspace{2cm}}$$

$$m\angle 2 = \underline{\hspace{2cm}}$$

$$m\angle 3 = \underline{\hspace{2cm}}$$



$$m\angle 1 = \underline{\hspace{2cm}}$$

$$m\angle 2 = \underline{\hspace{2cm}}$$

$$m\angle 3 = \underline{\hspace{2cm}}$$

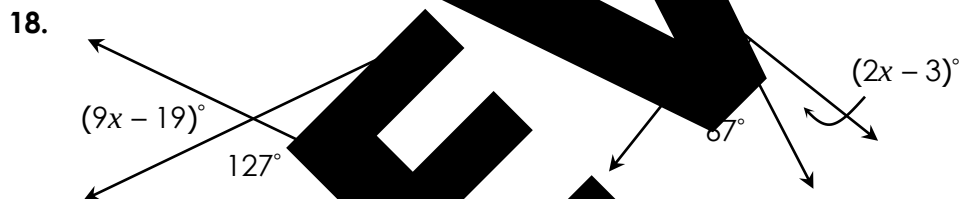
16. If $\angle D$ and $\angle E$ are supplementary angles and $m\angle E = 29^\circ$, find $m\angle D$.

16. $\underline{\hspace{2cm}}$

17. If $\angle 1$ and $\angle 2$ are vertical angles, $\angle 2$ and $\angle 3$ are complementary angles, and $m\angle 1 = 71^\circ$, find $m\angle 3$.

17. $\underline{\hspace{2cm}}$

Solve for x . (Diagrams are not drawn to scale)

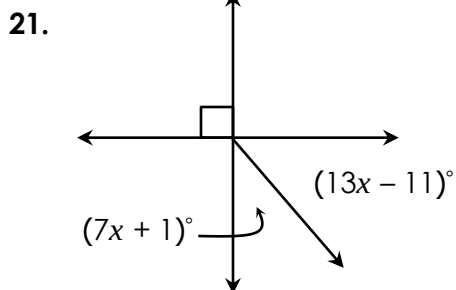
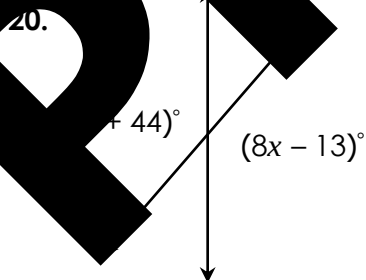


18. $\underline{\hspace{2cm}}$

19. $\underline{\hspace{2cm}}$

20. $\underline{\hspace{2cm}}$

21. $\underline{\hspace{2cm}}$



Name: _____

Date: _____

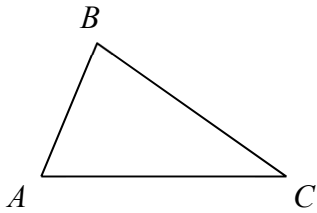
Topic: _____

Class: _____

Main Ideas/Questions

Notes/Examples

Triangles



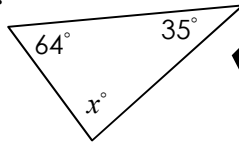
- A **triangle** is a polygon with _____ sides and _____ angles.
- On the triangle to the left, the **sides** are _____, _____, and _____; the **angles** are _____, _____, and _____.
- The _____ states that the sum of the measures of the three angles is always _____.

Therefore,

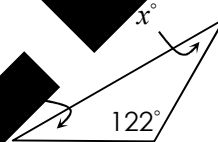
Examples

Directions: Find each missing measure.

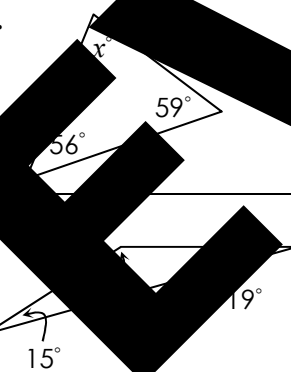
1.



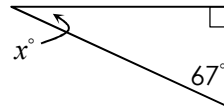
2.



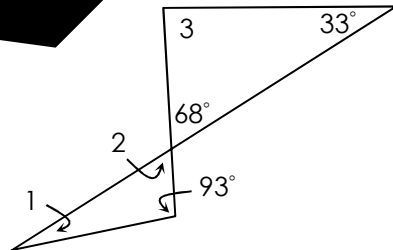
3.



4.



6.

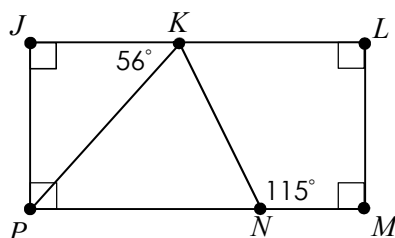


$$m\angle 1 = \underline{\hspace{2cm}}$$

$$m\angle 2 = \underline{\hspace{2cm}}$$

$$m\angle 3 = \underline{\hspace{2cm}}$$

8.



$$m\angle JPK = \underline{\hspace{2cm}}$$

$$m\angle KPN = \underline{\hspace{2cm}}$$

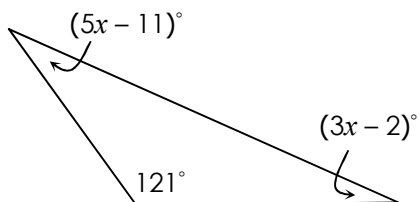
$$m\angle PNM = \underline{\hspace{2cm}}$$

$$m\angle NKL = \underline{\hspace{2cm}}$$

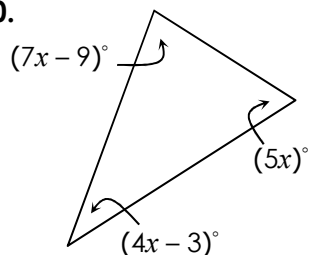
Using Algebra

Directions: Find the value of x .

9.



10.



Types of Triangles

CLASSIFYING BY ANGLES

All Acute Angles

One Obtuse Angle

One Right Angle

CLASSIFYING BY SIDES

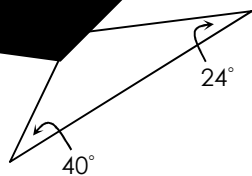
No Congruent Sides

Two Congruent Sides

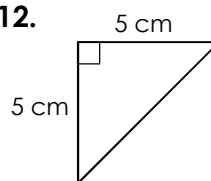
All Sides Congruent

Examples

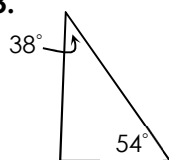
Directions: Classify each triangle by its angles and sides.



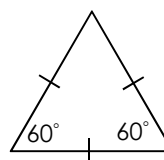
12.



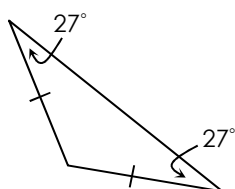
13.



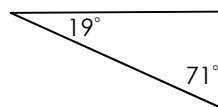
14.



15.



16.



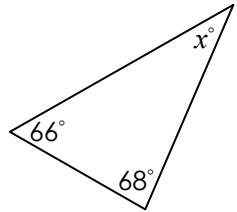
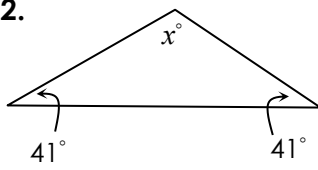
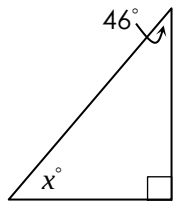
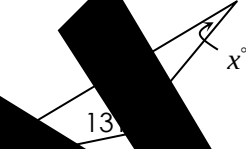
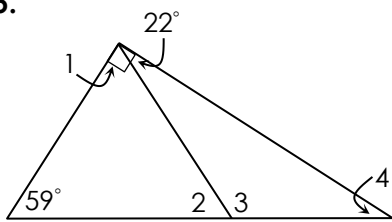
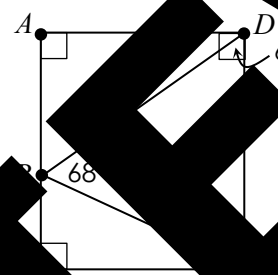
Name: _____

Unit 6: Geometry

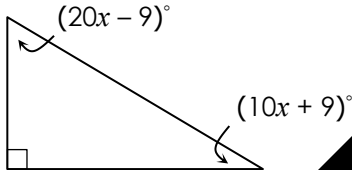
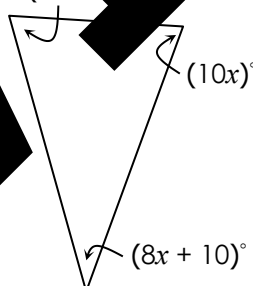
Date: _____ Per: _____

Homework 5: Triangles

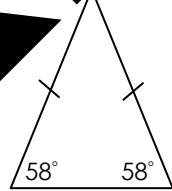
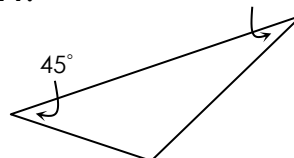
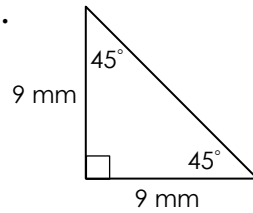
Directions: Find each missing measure.

1. 	2. 	3. 	4. 
5.  $m\angle 1 =$ _____ $m\angle 2 =$ _____ $m\angle 3 =$ _____ $m\angle 4 =$ _____		6.  $m\angle ADB =$ _____ $m\angle CBE =$ _____ $m\angle BEC =$ _____	

Directions: Find the value of x.

7. 	8. 
---	---

Directions: Classify each triangle by angles and sides.

9. 	10. 	11. 	12. 
---	--	---	--

Directions: Determine whether the statement is always, sometimes, or never true.

- | | |
|--|-------|
| 13. If a triangle is acute, then it is an equilateral triangle. | _____ |
| 14. If a triangle has two acute angles it must be an acute triangle. | _____ |
| 15. An obtuse triangle can have a right angle. | _____ |

Name:	Date:
Topic:	Class:

Main Ideas/Questions	Notes/Examples	
Constructing TRIANGLES	Directions: Construct a triangle with the two given side lengths. Label all side and angle measures.	
	1. 3 cm, 6 cm	2. 4 cm, 4 cm
	Directions: Using a protractor, construct a triangle with the two given angle measures. Label all side and angle measures.	
	3. $30^\circ, 45^\circ$	4. $90^\circ, 25^\circ$
Compare your triangles above to the triangles by your classmates. Are they the same?		
Unique Triangle (3 sides)	Unique triangle is a triangle that can only be drawn in one way. Construct a triangle with the given side lengths below. Label all side and angle measures.	
	5. 4 cm, 6 cm, 7 cm	6. 2 cm, 5 cm, 6 cm

Unique TRIANGLE {Given 2 sides and an included angle}	An included angle is the angle between two given sides. Construct a triangle with the given side lengths and their included angle. Label all side and angle measures.	
	7. 5 cm, 6 cm, 60°	8. 4 cm, 7 cm, 115°
Compare your triangles above to those drawn by your classmates. Are they the same?		
Impossible TRIANGLE	Directions: Construct a triangle with the three side lengths below.	
	9. 3 cm, 4 cm, 8 cm	10. 2 cm, 3 cm, 5 cm
What do you notice?		
Triangle Inequality THEOREM	Directions: Determine if the following side lengths could form a triangle. Prove your answer with an inequality.	
	11. 7 cm, 8 cm, 12 cm	12. 2 in, 2 in, 6 in
	13. 14 ft, 18 ft, 35 ft	14. 10 m, 12 m, 16 m
	15. 5 yd, 11 yd, 16 yd	16. 17 mm, 17 mm, 32 mm

Name: _____

Unit 6: Geometry

Date: _____ Per: _____

Homework 6: Constructing Triangles

**** This is a 2-page document! ****

Directions: Construct a triangle with the given measures. Label all side and angle measurements.

1. 4 cm, 6 cm

2. 3 cm, 3 cm

3. 110° , 40°

4. 40° , 60°

5. 2 cm, 3 cm, 4 cm

6. 4 cm, 4 cm, 5 cm

7. 5 cm, 5 cm, included angle: 90°

8. 6 cm, 4 cm, included angle: 40°

Directions: Determine if the following side lengths could form a triangle. Prove your answer with an inequality.

9. 10 ft, 12 ft, 25 ft

10. 9 yd, 17 yd, 24 yd

11. 6 in, 7 in, 13 in

12. 27 m, 35 m, 65 m

13. 38 mm, 45 mm, 82 mm

14. 23 cm, 25 cm, 25 cm

15. 19 in, 26 in, 40 in

16. 18 ft, 50 ft, 50 ft

Directions: Determine whether you can construct one, or no triangle(s) with the given measures.

17. a triangle with angle measures of 45° , 45° and 45°

18. a triangle with side measures of 3 cm, 4 cm, and 7 cm

19. a triangle with a right angle between two 6 cm sides

20. a triangle with two 70° angles

21. a right triangle with an obtuse angle

22. an isosceles triangle with two acute angles

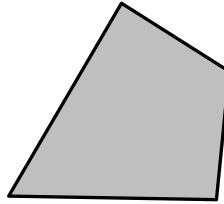
23. a scalene triangle with two 35° angles

24. a triangle with one acute, one obtuse and one right angle

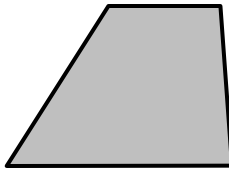
25. a triangle with sides measuring 30 ft, 30 ft, and 2 ft

Classifying Quadrilaterals

QUADRILATERAL



TRAPEZOID



ISOSCELES TRAPEZOID



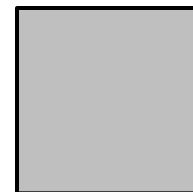
PARALLELOGRAM



RECTANGLE



SQUARE



Name: _____

Date: _____

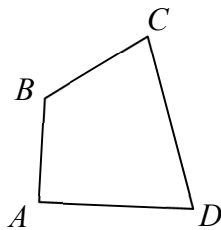
Topic: _____

Class: _____

Main Ideas/Questions

Notes/Examples

QUADRILATERALS



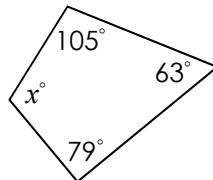
- A **quadrilateral** is a polygon with _____ sides and _____ angles.
- On the quadrilateral to the left, the **sides** are _____, _____, _____, and _____; the **angles** are _____, _____, _____, and _____.
- The sum of the measures of the four angles is always _____.

Therefore,

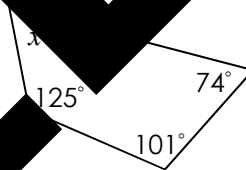
ANGLE MEASURES

Directions: Find each missing measure.

1.



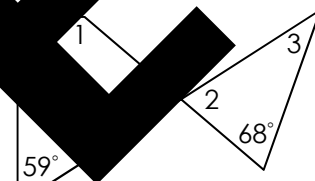
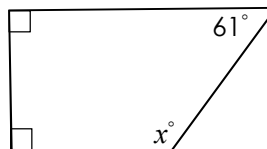
2.



3.



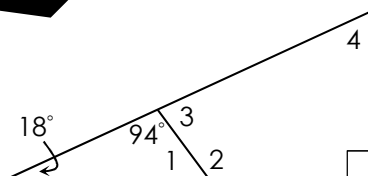
4.



$$m\angle 1 = \underline{\hspace{2cm}}$$

$$m\angle 2 = \underline{\hspace{2cm}}$$

$$m\angle 3 = \underline{\hspace{2cm}}$$



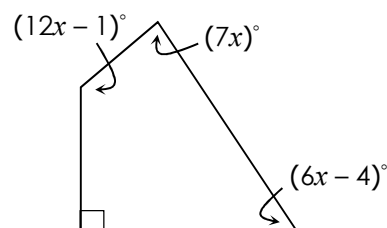
$$m\angle 1 = \underline{\hspace{2cm}}$$

$$m\angle 2 = \underline{\hspace{2cm}}$$

$$m\angle 3 = \underline{\hspace{2cm}}$$

$$m\angle 4 = \underline{\hspace{2cm}}$$

7. Find the value of x .



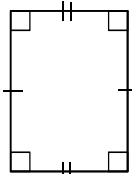
Place a checkmark on the properties that apply to each quadrilateral.

exactly one pair of opposite sides are parallel	both pairs of opposite sides are parallel	opposite sides are congruent	four congruent Sides	four right angles
---	---	------------------------------	----------------------	-------------------

CLASSIFYING QUADRILATERALS

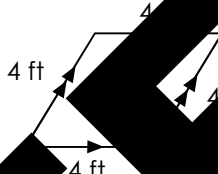
Classify each quadrilateral using all names that apply.

8.



- ☐ Quadrilateral
- ☐ Trapezoid
- ☐ Isosceles Trapezoid
- ☐ Parallelogram
- ☐ Rectangle
- ☐ Rhombus
- ☐ Square

9.

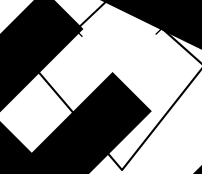


- ☒ Quadrilateral
- ☒ Trapezoid
- ☐ Isosceles Trapezoid
- ☐ Parallelogram
- ☐ Rectangle
- ☐ Rhombus
- ☐ Square



- ☐ Quadrilateral
- ☐ Trapezoid
- ☐ Isosceles Trapezoid
- ☐ Parallelogram
- ☐ Rectangle
- ☐ Rhombus
- ☐ Square

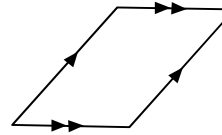
11.



- ☐ Parallelogram
- ☐ Trapezoid
- ☐ Parallelogram
- ☐ Rectangle
- ☐ Rhombus
- ☐ Square

- ☐ Quadrilateral
- ☐ Trapezoid
- ☐ Isosceles Trapezoid
- ☐ Parallelogram
- ☐ Rectangle
- ☐ Rhombus
- ☐ Square

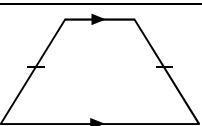
13.



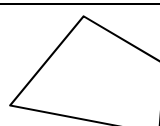
- ☐ Quadrilateral
- ☐ Trapezoid
- ☐ Isosceles Trapezoid
- ☐ Parallelogram
- ☐ Rectangle
- ☐ Rhombus
- ☐ Square

Classify each quadrilateral using the name that best describes it.

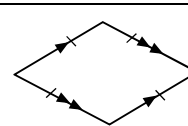
►14.



15.



16.



Determine whether the statement is always, sometimes, or never true.

17. A rectangle is a rhombus.

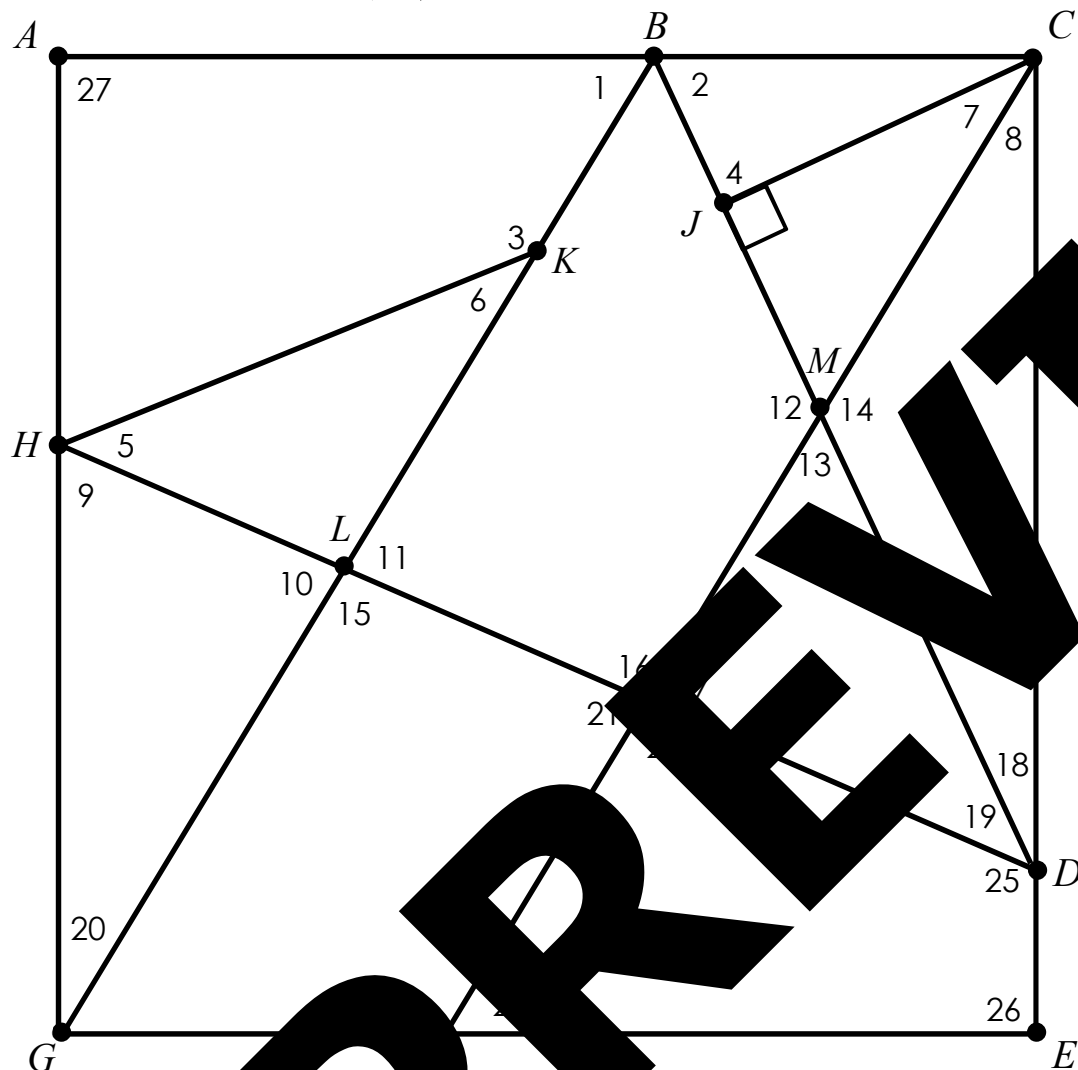
18. A parallelogram is a square.

19. A trapezoid is a quadrilateral.

20. A square is a rectangle.

The Great Angle CHALLENGE!

Name: _____



Given: $ACEG$ is a rectangle, $m\angle BCJ = 20^\circ$, $m\angle KLH = 92^\circ$,
 $m\angle AHK = 5^\circ$, $m\angle KBJ = 54^\circ$, $m\angle BMC = 55^\circ$,
 $m\angle LGF = 5^\circ$

Find each angle measure!

- | | |
|----------------------|----------------------|
| $m\angle 1 =$ _____ | $m\angle 15 =$ _____ |
| $m\angle 2 =$ _____ | $m\angle 16 =$ _____ |
| $m\angle 3 =$ _____ | $m\angle 17 =$ _____ |
| $m\angle 4 =$ _____ | $m\angle 18 =$ _____ |
| $m\angle 5 =$ _____ | $m\angle 19 =$ _____ |
| $m\angle 6 =$ _____ | $m\angle 20 =$ _____ |
| $m\angle 7 =$ _____ | $m\angle 21 =$ _____ |
| $m\angle 8 =$ _____ | $m\angle 22 =$ _____ |
| $m\angle 9 =$ _____ | $m\angle 23 =$ _____ |
| $m\angle 10 =$ _____ | $m\angle 24 =$ _____ |
| $m\angle 11 =$ _____ | $m\angle 25 =$ _____ |
| $m\angle 12 =$ _____ | $m\angle 26 =$ _____ |
| $m\angle 13 =$ _____ | $m\angle 27 =$ _____ |
| $m\angle 14 =$ _____ | |

Name: _____

Unit 6: Geometry

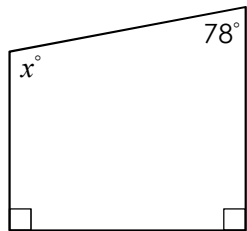
Date: _____ Per: _____

Homework 7: Quadrilaterals

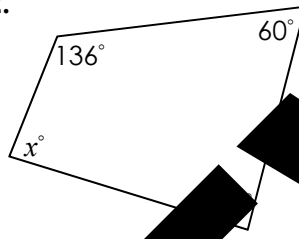
**** This is a 2-page document! ****

Directions: Find each missing measure.

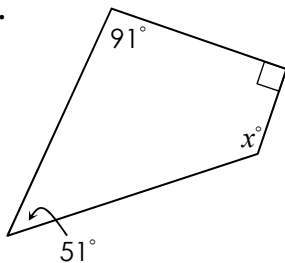
1.



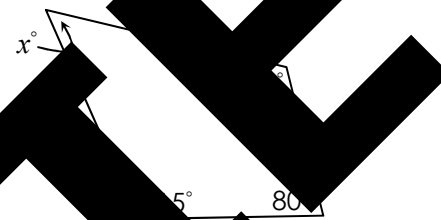
2.



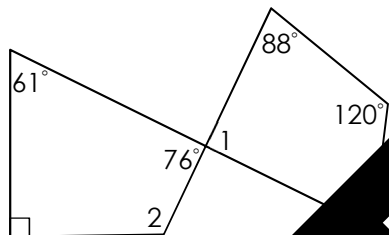
3.



4.



5.

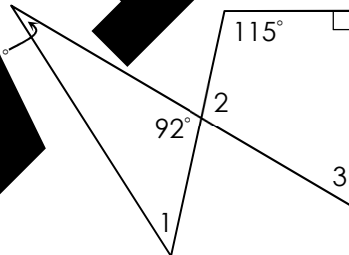


$m\angle 1 =$ _____

$m\angle 2 =$ _____

$m\angle 3 =$ _____

6.



$m\angle 1 =$ _____

$m\angle 2 =$ _____

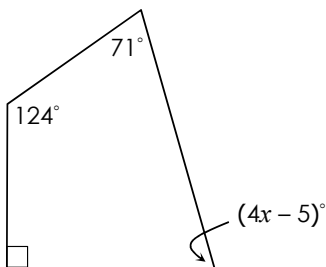
$m\angle 3 =$ _____

Directions: Find the value of x .

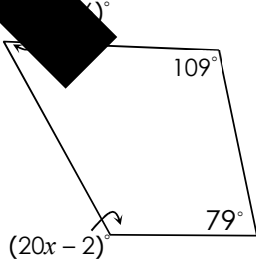
7.



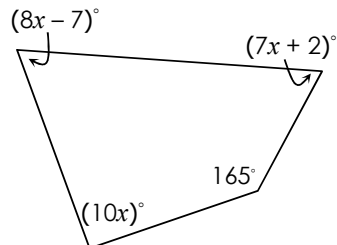
8.



9.

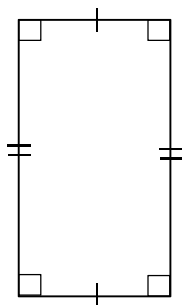


10.



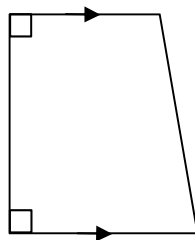
Directions: Classify each quadrilateral using all names that apply.

11.



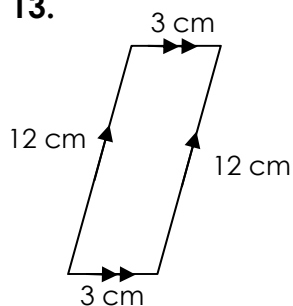
- ☐ Quadrilateral
- ☐ Trapezoid
- ☐ Isosceles Trapezoid
- ☐ Parallelogram
- ☐ Rectangle
- ☐ Rhombus
- ☐ Square

12.



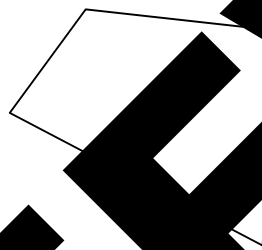
- ☐ Quadrilateral
- ☐ Trapezoid
- ☐ Isosceles Trapezoid
- ☐ Parallelogram
- ☐ Rectangle
- ☐ Rhombus

13.



- ☐ Quadrilateral
- ☐ Trapezoid
- ☐ Isosceles Trapezoid
- ☐ Parallelogram
- ☐ Rectangle
- ☐ Rhombus
- ☐ Square

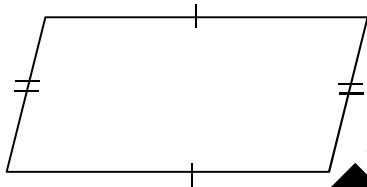
14.



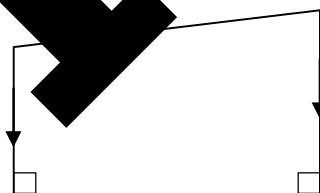
- ☐ Quadrilateral
- ☐ Trapezoid
- ☐ Isosceles Trapezoid
- ☐ Parallelogram
- ☐ Rectangle
- ☐ Rhombus
- ☐ Square

Directions: Classify each quadrilateral using the most specific name possible.

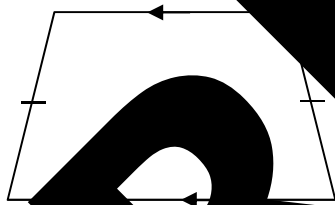
15.



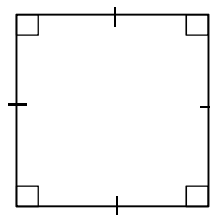
16.



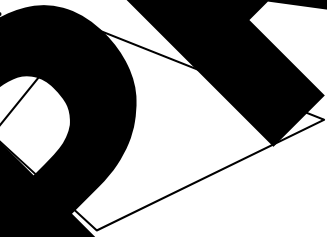
17.



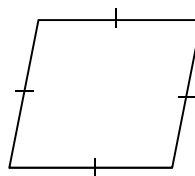
18.



19.



20.



Directions: Determine whether the statement is always, sometimes or never true.

21. A rectangle is a square.

22. A trapezoid is a parallelogram.

23. A rhombus is a square.

Name: _____

Math 7

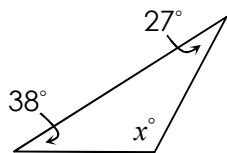
Date: _____ Per: _____

Unit 6: Geometry

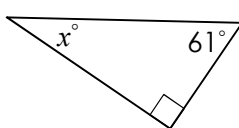
Quiz 6-2: Triangles & Quadrilaterals

Find each measure.

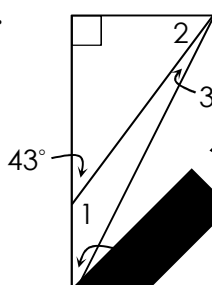
1.



2.



3.



3.

$m\angle 3 =$ _____

4.

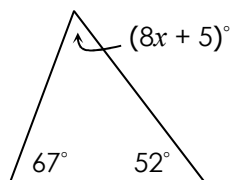
$x =$ _____

5.

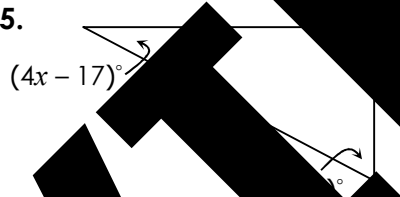
$x =$ _____

Solve for x .

4.



5.

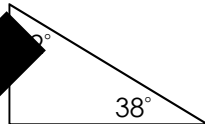


Classify each triangle by angles and sides.

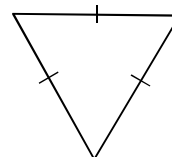
6.



7.



8.



Consider a triangle with the given description. Label all side and angle measures.

9. a triangle with angles of 25° and 40°

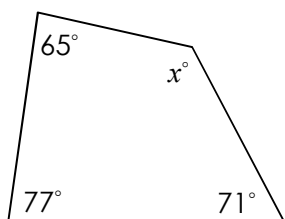
10. a 4 cm side and a 5 cm side that meet at a 60° angle

Determine whether you can construct many, one, or no triangle(s) with the given measurements.

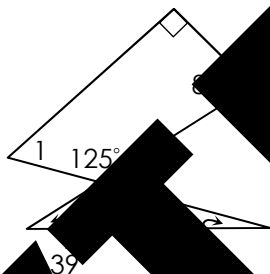
11. a triangle with two obtuse angles
12. a triangle with side lengths measuring 6 ft, 10 ft, and 14 ft
13. a triangle with angle measures of 65° , 80° , and 35° .
14. a triangle with side lengths measuring 7 m, 12 m, and 19 m
15. an isosceles triangle with two 4 in. sides and a 120° angle between them

Find each measure.

16.



17.



11. _____

12. _____

13. _____

16. _____

17. $m\angle 1 =$ _____

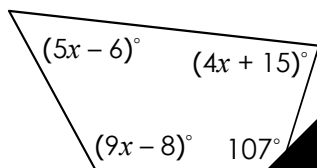
$m\angle 2 =$ _____

$m\angle 3 =$ _____

18. $x =$ _____

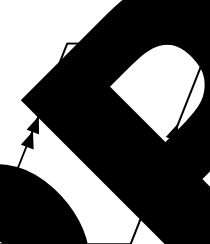
Solve for x .

18.



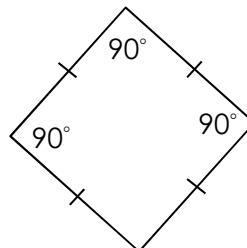
Classify each shape using the names that apply.

19.



- ☐ Quadrilateral
- ☐ Trapezoid
- ☐ Isosceles Trapezoid
- ☐ Parallelogram
- ☐ Rectangle
- ☐ Rhombus
- ☐ Square

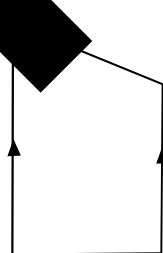
20.



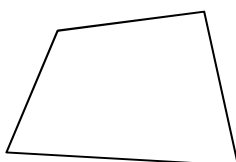
- ☐ Quadrilateral
- ☐ Trapezoid
- ☐ Isosceles Trapezoid
- ☐ Parallelogram
- ☐ Rectangle
- ☐ Rhombus
- ☐ Square

Classify each shape using the name that BEST describes it.

21.



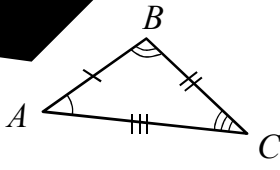
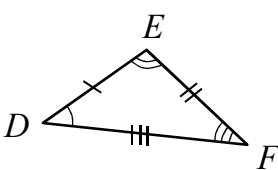
22.



21. _____

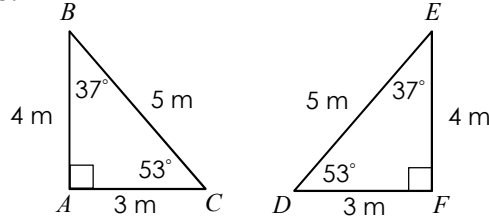
22. _____

Name:	Date:
Topic:	Class:

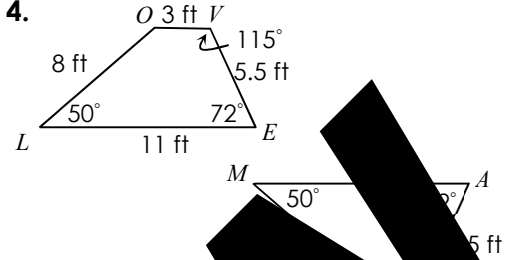
Main Ideas/Questions	Notes/Examples																				
POLYGON	A polygon is a _____ figure formed by three or more _____, called _____.																				
	<table border="1"> <thead> <tr> <th>POLYGON</th> <th>NOT POLYGONS</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> </tr> </tbody> </table>	POLYGON	NOT POLYGONS																		
	POLYGON	NOT POLYGONS																			
<i>Classifying</i> POLYGONS	Polygons can be classified by the number of sides they have. Complete the table below.																				
	<table border="1"> <thead> <tr> <th># of Sides</th> <th>Polygon</th> <th># of Sides</th> <th>Polygon Name</th> </tr> </thead> <tbody> <tr> <td>3</td> <td> </td> <td>7</td> <td> </td> </tr> <tr> <td>4</td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td>5</td> <td> </td> <td>9</td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td>10</td> <td> </td> </tr> </tbody> </table>	# of Sides	Polygon	# of Sides	Polygon Name	3		7		4				5		9				10	
	# of Sides	Polygon	# of Sides	Polygon Name																	
	3		7																		
	4																				
	5		9																		
		10																			
CONGRUENT POLYGONS	Congruent polygons have the same _____ and _____. Corresponding parts (_____ and _____) are _____.																				
	When polygons are congruent, we can write a congruency statement .   $\triangle ABC \cong \triangle DEF$																				
<i>Complete</i> STATEMENT	A valid congruency statement must match all corresponding angles and sides.																				
	Directions: Identify the congruent parts given the congruency statement.																				
	1. $\triangle CDE \cong \triangle FGH$	2. parallelogram PQRS $\cong$ parallelogram WXYZ																			
	$\angle C \cong$ _____	$\overline{CD} \cong$ _____	$\angle Q \cong$ _____	$\overline{QR} \cong$ _____																	
	$\angle D \cong$ _____	$\overline{DE} \cong$ _____	$\angle Z \cong$ _____	$\overline{YZ} \cong$ _____																	
$\angle E \cong$ _____	$\overline{CE} \cong$ _____	$\angle R \cong$ _____	$\overline{PS} \cong$ _____																		

Directions: Determine if the polygons are congruent. If yes, write a congruency statement.

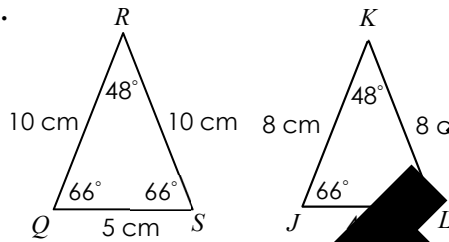
3.



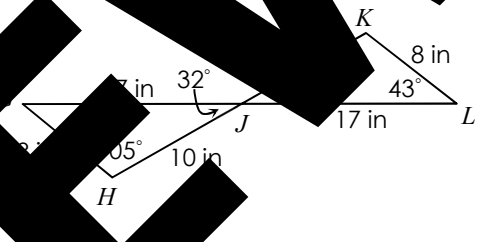
4.



5.

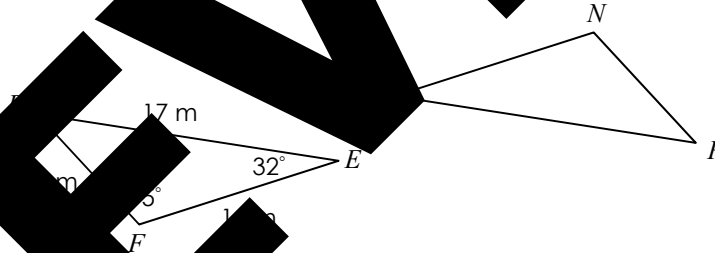


6.



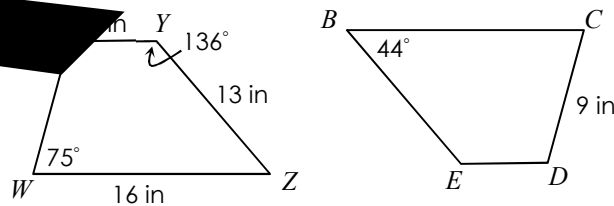
Directions: Find each measure. (Hint- use corresponding parts!)

7. $\triangle DEF \cong \triangle PMN$



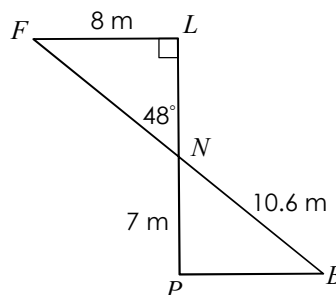
$m\angle P =$ _____
 $m\angle M =$ _____
 $m\angle N =$ _____
 $PM =$ _____
 $PN =$ _____
 $MN =$ _____

8. trapezoid $WXYZ \cong$ trapezoid $CDEB$



$m\angle C =$ _____
 $m\angle Z =$ _____
 $m\angle X =$ _____
 $WX =$ _____
 $BC =$ _____
 $BE =$ _____

9. $\triangle FLN \cong \triangle BPN$



$m\angle F =$ _____
 $m\angle P =$ _____
 $m\angle B =$ _____
 $FN =$ _____
 $NP =$ _____
 $PB =$ _____

FINDING
measures

Name: _____

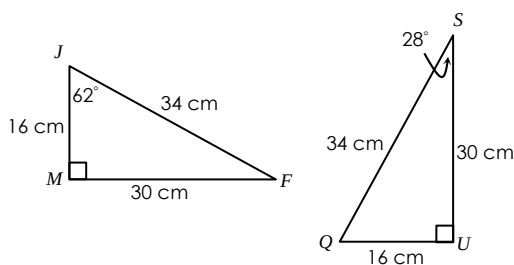
Unit 6: Geometry

Date: _____ Per: _____

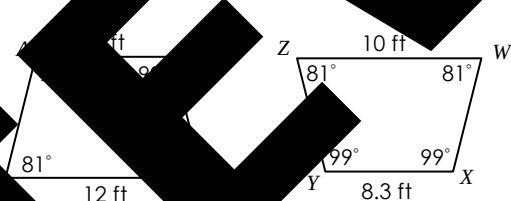
Homework 8: Congruent Polygons

Directions: Identify the congruent parts given the congruency statement.1. $\triangle JKL \cong \triangle XYZ$ $\angle L \cong$ $\overline{KL} \cong$ $\angle Y \cong$ $\overline{XY} \cong$ $\angle J \cong$ $\overline{ZX} \cong$ 2. rectangle $DEFG \cong$ rectangle PQ $\angle G \cong$ $\overline{GF} \cong$ $\angle E \cong$ $\overline{QP} \cong$ $\angle P \cong$ $\overline{PD} \cong$ **Directions:** Determine if the polygons are congruent. If yes, write a congruency statement.

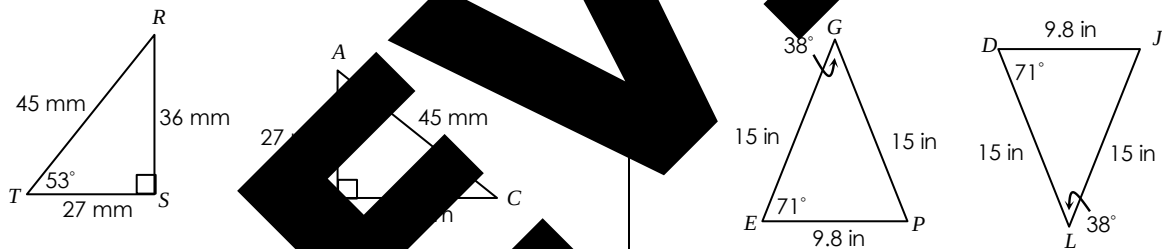
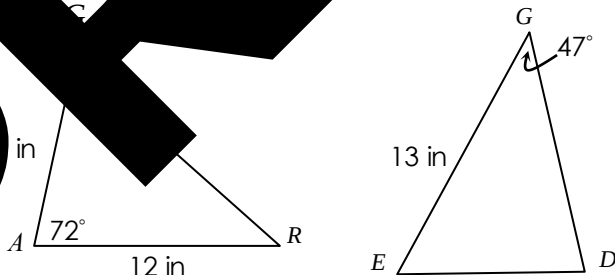
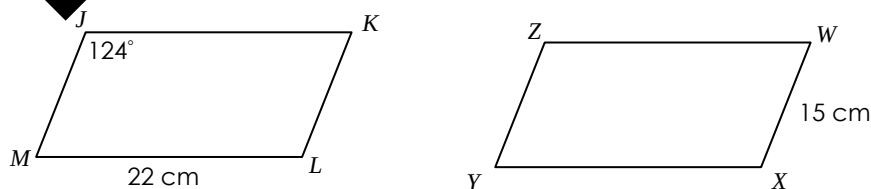
3.



4.



5.

**Direction:** Find each measure. (Hint- match corresponding parts!)7. $\triangle ACR \cong \triangle GED$  $m\angle R =$ _____ $m\angle C =$ _____ $m\angle E =$ _____ $ED =$ _____ $CR =$ _____ $DG =$ _____8. parallelogram $MJKL \cong$ parallelogram $WXYZ$  $m\angle K =$ _____ $m\angle W =$ _____ $m\angle X =$ _____ $ZW =$ _____ $MJ =$ _____ $YX =$ _____

Name:

Date:

Topic:

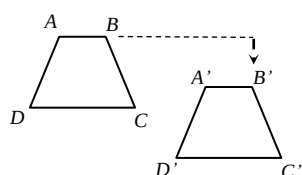
Class:

Main Ideas/Questions

Notes/Examples

TRANSFORMATION

TRANSLATION

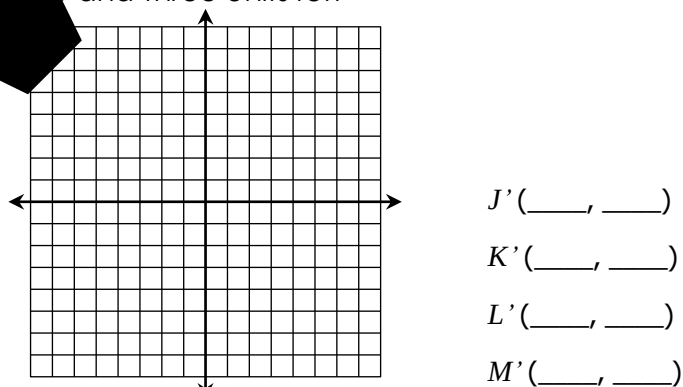
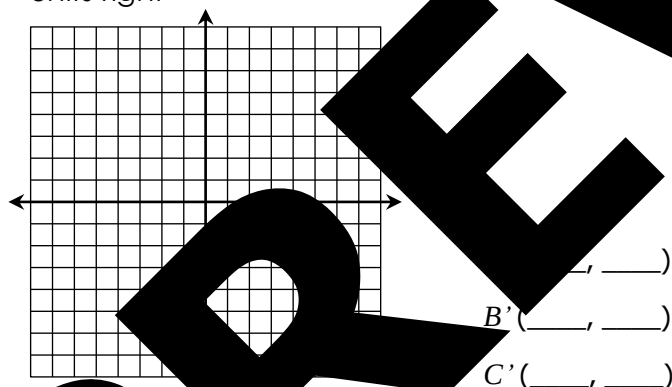


A' is read as "A prime".
The prime symbol is used
to name the image.

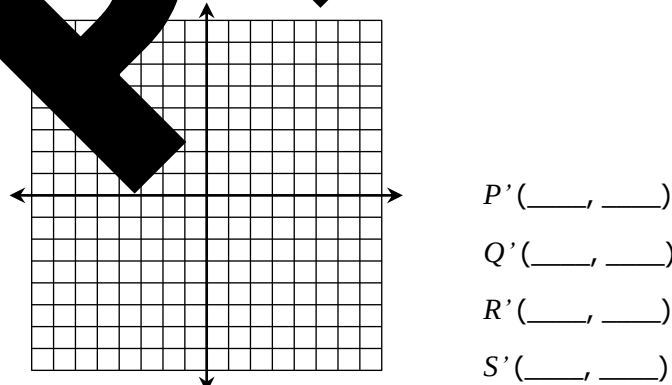
- A **translation** _____ a figure _____ and/or _____.
- Every point of the figure moves the same _____ and in the same _____.
- Translations result in _____ meaning that the figures _____ their size and shape.

Directions: Graph and label each figure and its image under the given translation. Give the coordinates of the image.

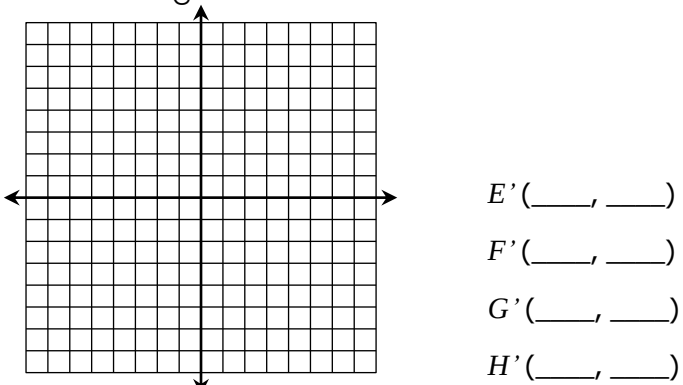
1. Triangle ABC with vertices $A(-8, 5)$, $B(-2, 1)$, and $C(-3, -4)$: translated one unit right and six units up
Square $JKLM$ with vertices $J(0, -2)$, $K(4, -1)$, $L(5, -5)$, and $M(1, -6)$: translated eight units up and three units left



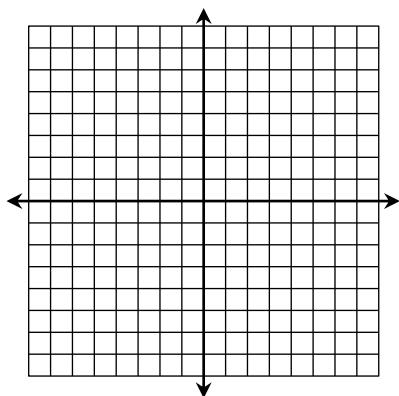
3. Triangle $PQRS$ with vertices $P(1, 4)$, $Q(4, 8)$, $R(7, 2)$, and $S(3, 6)$: translated two units down and seven units left



4. Parallelogram $EFGH$ with vertices $E(-6, 6)$, $F(-1, 7)$, $G(-2, -2)$, and $H(-7, -3)$: translated four units right and five units down



5. Quadrilateral *MATH* with vertices $M(0, 4)$, $A(4, 3)$, $T(7, -2)$, and $H(1, -2)$: translated one unit left and four units up



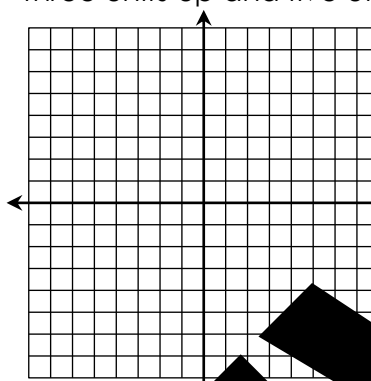
$M'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

$A'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

$T'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

$H'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

6. Rhombus *BCDE* with vertices $B(-4, 1)$, $C(1, 2)$, $D(0, -3)$, and $E(-5, -4)$: translated three units up and five units right



$B'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

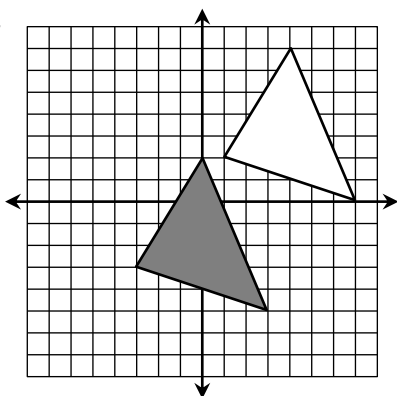
$C'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

$D'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

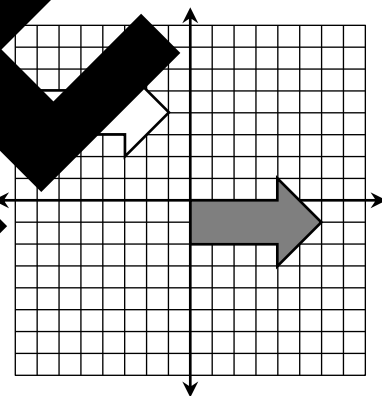
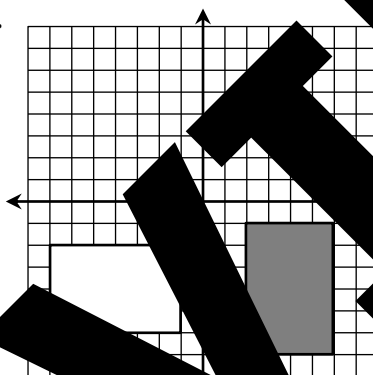
$E'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

Directions: Determine if the shaded figure is a translation of the unshaded figure. If yes, describe the translation.

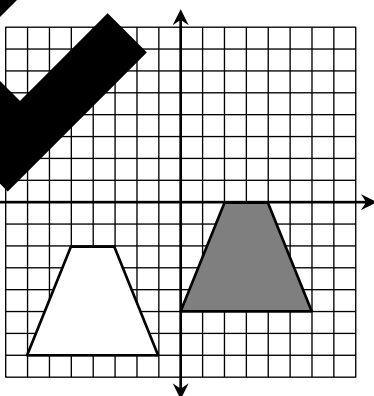
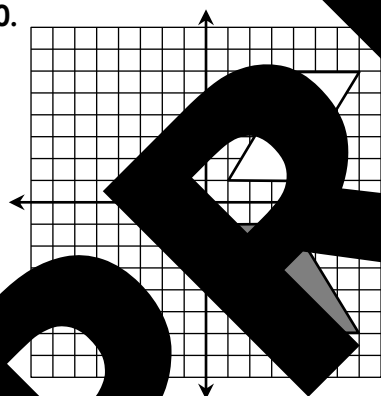
7.



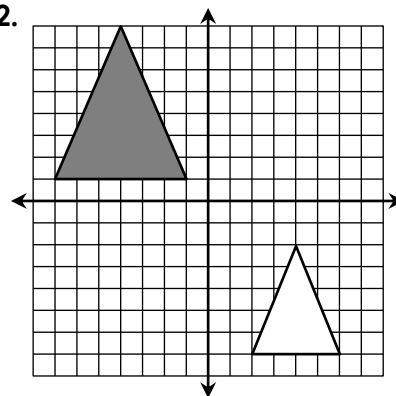
8.



10.



12.



Directions: Describe the translation of the point to its image.

13. $A(3, -1) \rightarrow A'(7, 0)$

14. $P(-5, 6) \rightarrow P'(-7, 1)$

15. $K(-8, -4) \rightarrow K'(-1, -7)$

Name: _____

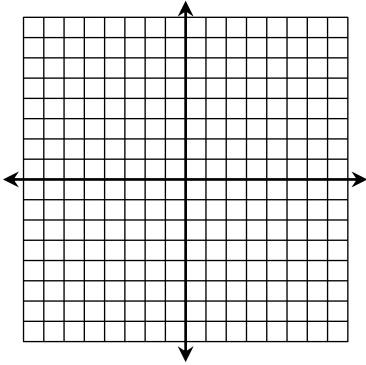
Unit 6: Geometry

Date: _____ Per: _____

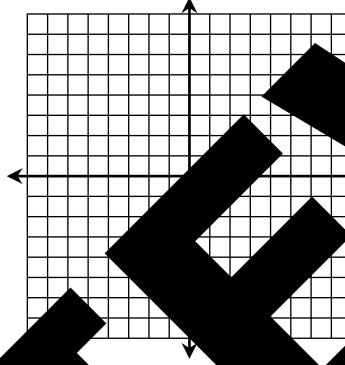
Homework 9: Translations

Directions: Graph and label each figure and its image under the given translation. Give the coordinates of the image.

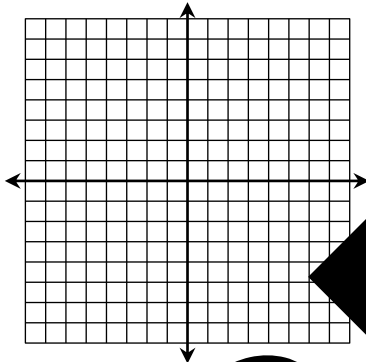
1. Rectangle $WXYZ$ with vertices $W(-5, -3)$, $X(-5, 2)$, $Y(3, 2)$, and $Z(3, -3)$: translated two units right and three units down

 $W'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $X'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $Y'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $Z'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

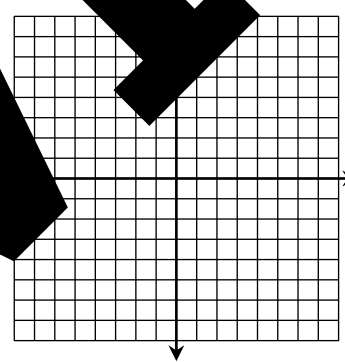
2. Square $ABCD$ with vertices $A(0, 2)$, $B(5, 2)$, $C(5, 1)$, and $D(2, -1)$: translated four units up and six units left

 $A'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $B'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $C'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $D'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

3. Triangle QRS with vertices $Q(-3, 4)$, $R(-1, -3)$, and $S(5, 2)$: translated one unit down and three units left

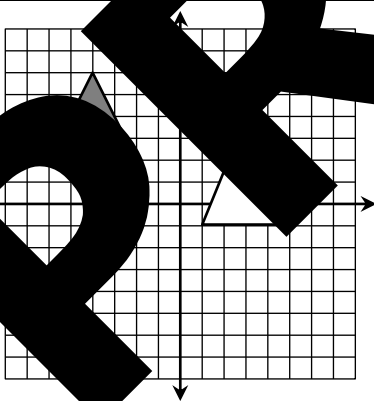
 $Q'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $R'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $S'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

4. Parallelogram $JKLM$ with vertices $J(2, 3)$, $K(6, -1)$, $L(10, -1)$, and $M(8, 2)$: translated four units down and two units left

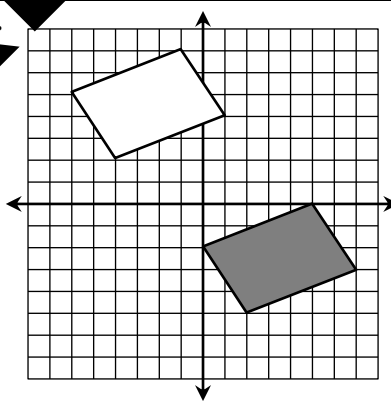
 $J'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $K'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $L'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $M'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

Directions: Determine if the shaded figure is a translation of the white figure. If yes, describe the translation.

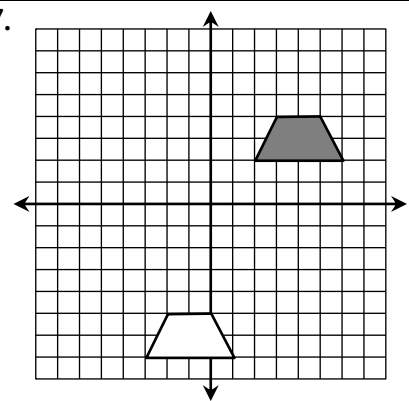
5.



6.



7.



Directions: Describe the translation of the point to its image.

8. $A(5, 3) \rightarrow A'(-4, -1)$

9. $C(-2, 1) \rightarrow C'(5, 3)$

10. $R(-4, -4) \rightarrow R'(-2, 0)$

Name: _____

Date: _____

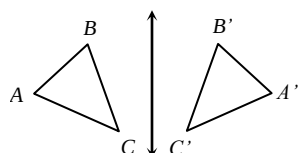
Topic: _____

Class: _____

Main Ideas/Questions

Notes/Examples

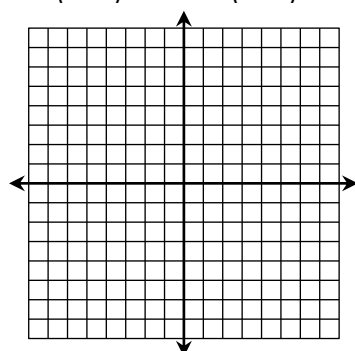
REFLECTION



- A _____ over a line called the _____.
- Each point and its image are the _____ from the line of reflection.
- The _____ and _____ are _____ on line of reflection.
- Reflections also result in _____.

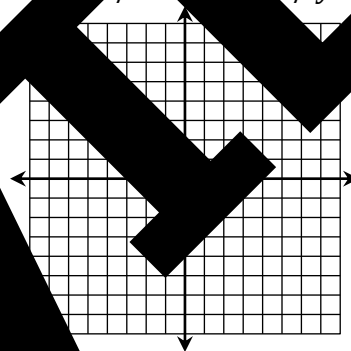
Directions: Graph and label each figure and its image under a reflection in the given line. Give the coordinates of the image.

1. Rectangle $ABCD$ with vertices $A(1, 1)$, $B(1, 7)$, $C(5, 7)$, and $D(5, 1)$: **x -axis**



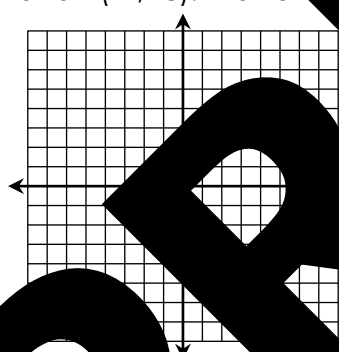
$A'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$
 $B'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$
 $C'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$
 $D'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

2. Rhombus $PQRS$ with vertices $P(-6, 4)$, $Q(-4, 7)$, $R(0, 4)$, and $S(-2, 1)$: **y -axis**



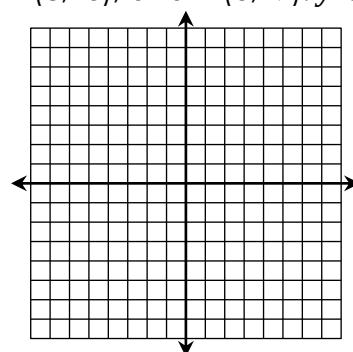
$P'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$
 $Q'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$
 $R'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$
 $S'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

3. Triangle WXY with vertices $W(-3, -2)$, $X(2, -1)$, and $Y(-4, -8)$: **x -axis**



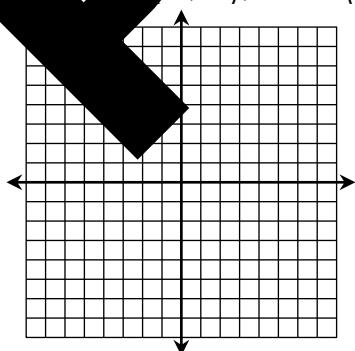
$W'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$
 $X'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$
 $Y'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

4. Square $JKLM$ with vertices $J(1, -2)$, $K(6, 0)$, $L(8, -5)$, and $M(3, -7)$: **y -axis**



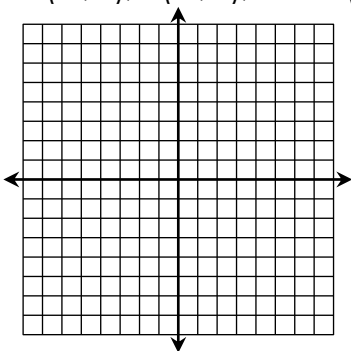
$J'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$
 $K'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$
 $L'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$
 $M'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

5. Trapezoid $TUVW$ with vertices $S(-7, 4)$, $T(-2, 4)$, $U(2, -1)$, and $V(-5, -1)$: **y -axis**

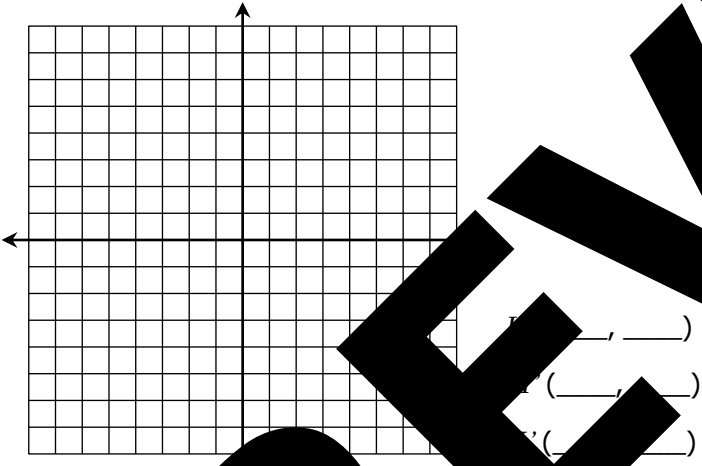
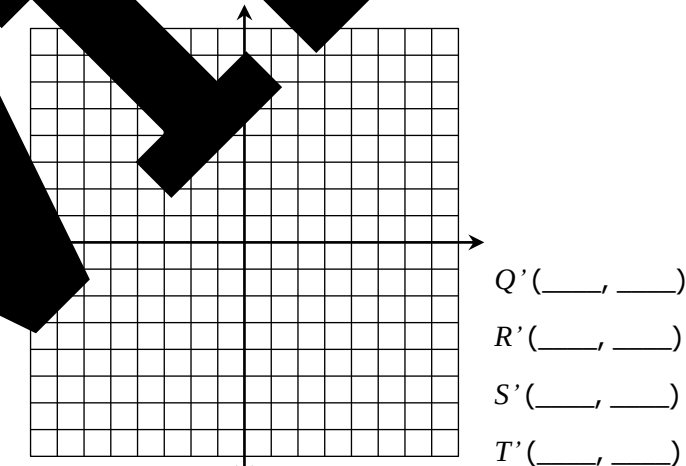
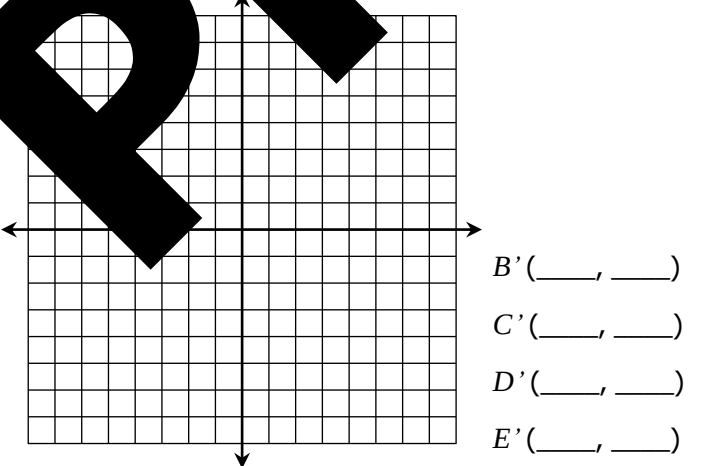
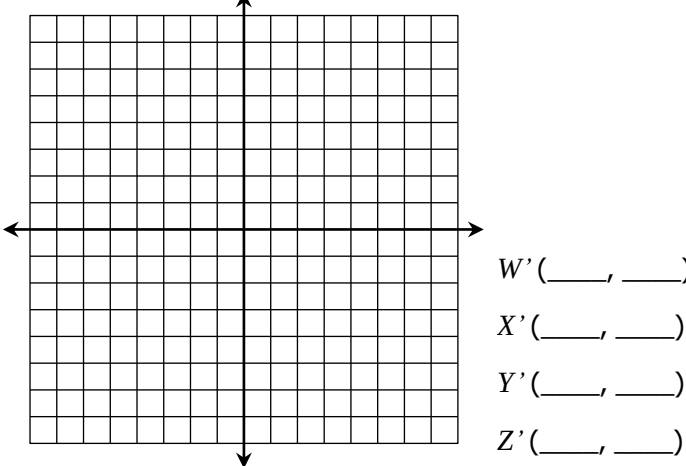


$S'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$
 $T'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$
 $U'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$
 $V'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

6. Quadrilateral $DEFG$ with vertices $D(-7, 6)$, $E(-1, 7)$, $F(-3, 1)$, and $G(-6, 2)$: **x -axis**

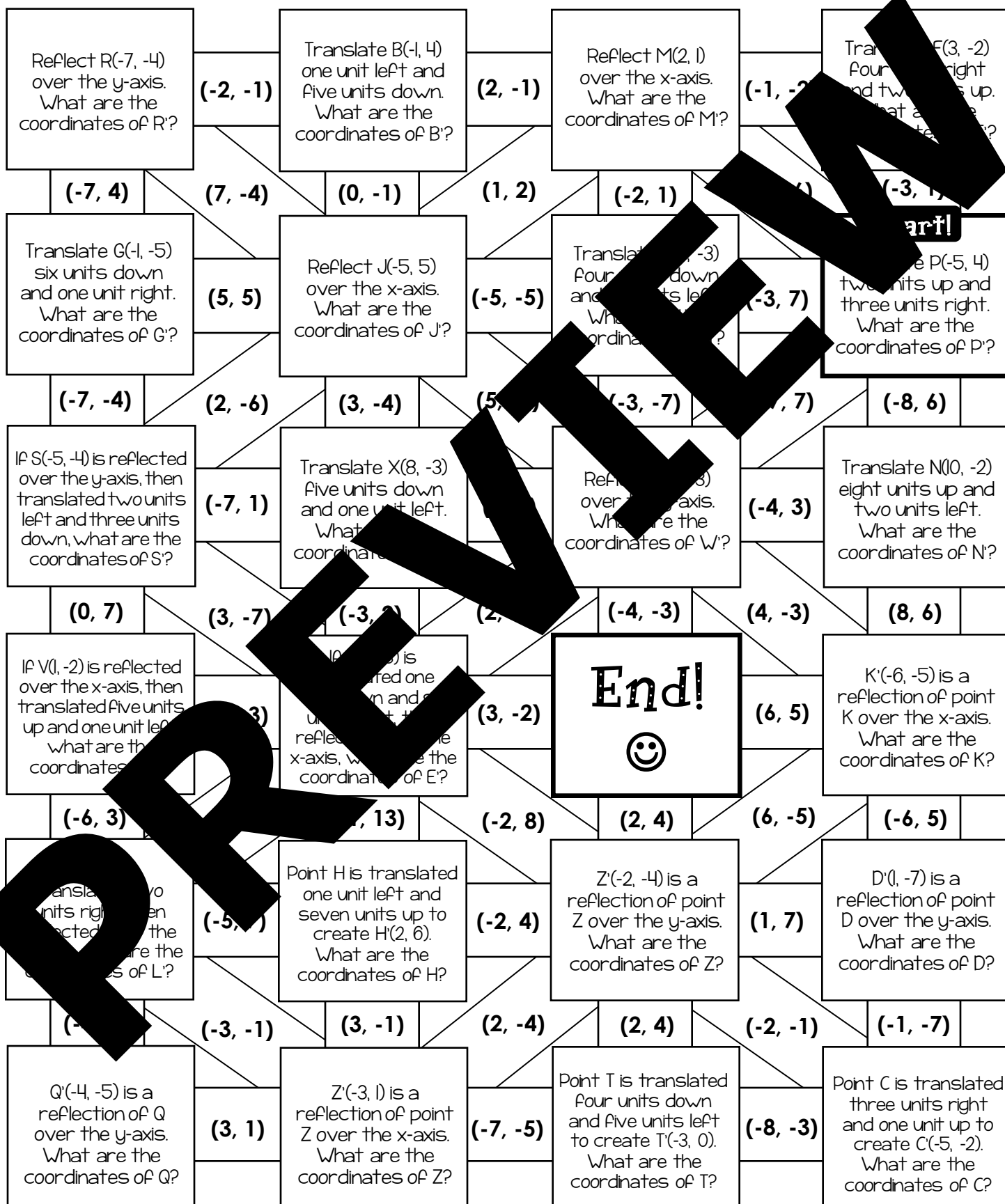


$D'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$
 $E'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$
 $F'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$
 $G'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

NAME THE Line of Reflection	Directions: The coordinates of a point and its image are given. Name the line of reflection.	
	7. $S(3, -3) \rightarrow S'(-3, -3)$	8. $N(-5, 2) \rightarrow N'(-5, -2)$
	9. $P(-4, -6) \rightarrow P'(-4, 6)$	10. $H(1, 7) \rightarrow G'(-1, 7)$
COMPOSITE Transformations		
Directions: Graph and label each figure and its image under the given transformation. Write the coordinates of the image.		
11. Triangle LMN with vertices $L(-7, 7)$, $M(-1, 1)$, and $N(-6, 2)$: (a) reflected in the x-axis (b) translated 5 units up and 4 units right	12. Parallelogram $QRST$ with vertices $Q(2, -1)$, $R(6, 0)$, $S(5, -3)$, and $T(1, -7)$: (a) reflected in the y-axis (b) translated 4 units left and 3 units up	
		
13. Trapezoid $BCDE$ with vertices $B(1, 4)$, $C(3, 6)$, $D(5, 2)$, and $E(3, 2)$: (a) translated 5 units down (b) reflected in the x-axis	14. Quadrilateral $WXYZ$ with vertices $W(-4, 4)$, $X(-1, 6)$, $Y(0, 2)$ and $Z(-5, 0)$: (a) translated 7 units down and 6 units right (b) reflected in the y-axis	
		
B' (____, ____) C' (____, ____) D' (____, ____) E' (____, ____) 	Q' (____, ____) R' (____, ____) S' (____, ____) T' (____, ____) W' (____, ____) X' (____, ____) Y' (____, ____) Z' (____, ____) 	

Translations & Reflections Maze!

Directions: Begin at the Start box. Read each problem carefully to find the coordinates. Use your solutions to navigate through the maze!



Name: _____

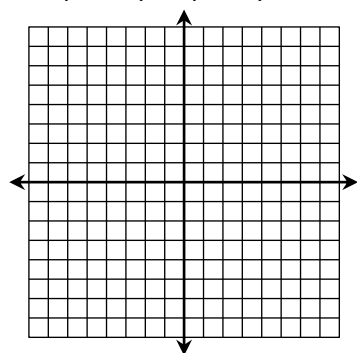
Unit 6: Geometry

Date: _____ Per: _____

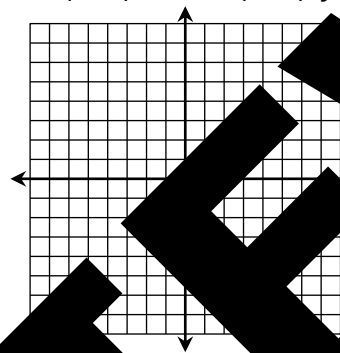
Homework 10: Reflections

**** This is a 2-page document! ******Directions:** Graph and label each figure and its image under a reflection in the given axis. Give the coordinates of the image.

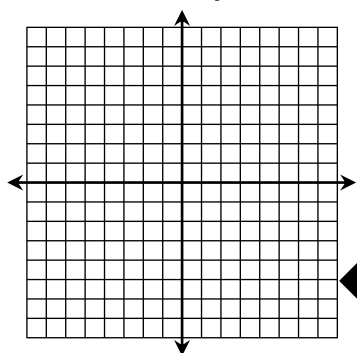
1. Rectangle $EFGH$ with vertices $E(-6, -4)$, $F(-4, -6)$, $G(0, -2)$, and $H(-2, 0)$: **x-axis**

 $E'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $F'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $G'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $H'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

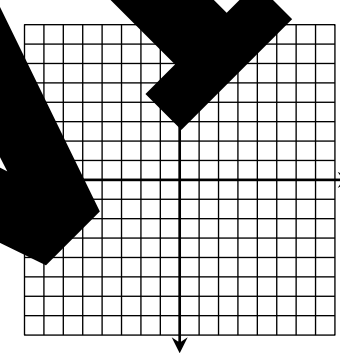
2. Square $ABCD$ with vertices $A(6, 4)$, $B(6, 7)$, $C(7, 3)$, and $D(2, 2)$: **y-axis**

 $A'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $B'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $C'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $D'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

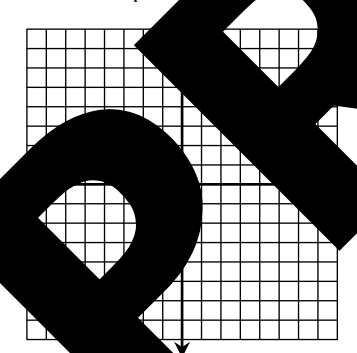
3. Triangle QRS with vertices $Q(3, 4)$, $R(7, 3)$, and $S(4, -4)$: **y-axis**

 $Q'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $R'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $S'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

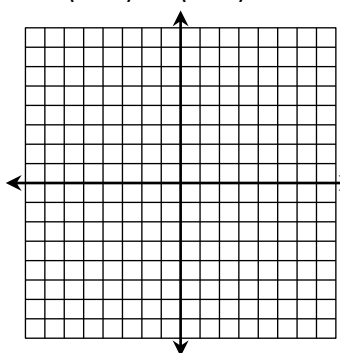
4. Polygon $JKLM$ with vertices $J(-1, -2)$, $K(4, 1)$, $L(3, -5)$, and $M(-2, -5)$: **x-axis**

 $J'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $K'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $L'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $M'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

5. Triangle EFG with vertices $E(-4, 1)$, $F(-1, 3)$, and $G(-1, 2)$: **x-axis**

 $E'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $F'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $G'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

6. Quadrilateral $TUVW$ with vertices $T(-2, 7)$, $U(5, 8)$, $V(6, 1)$, and $W(-3, 2)$: **x-axis**

 $T'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $U'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $V'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ $W'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ **Directions:** The coordinates of a point and its image are given. Name the line of reflection.

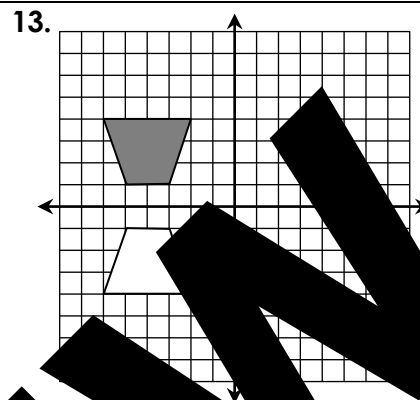
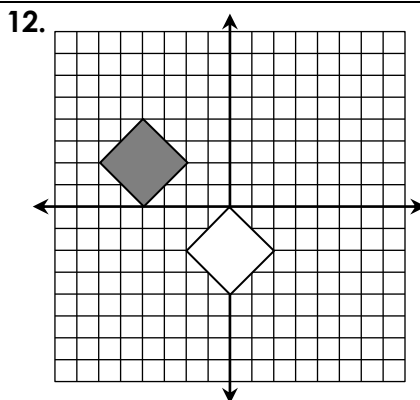
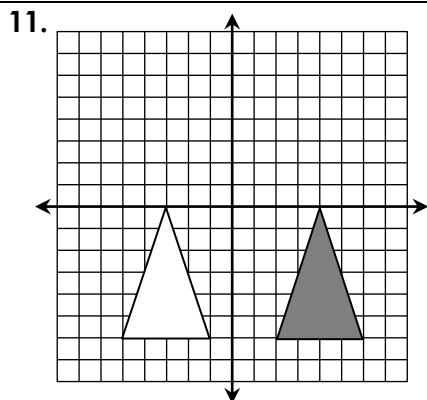
7. $E(-4, -2) \rightarrow E'(-4, 2)$

8. $N(3, 7) \rightarrow N'(-3, 7)$

9. $P(6, -1) \rightarrow P'(-6, -1)$

10. $K(-2, 5) \rightarrow K'(2, 5)$

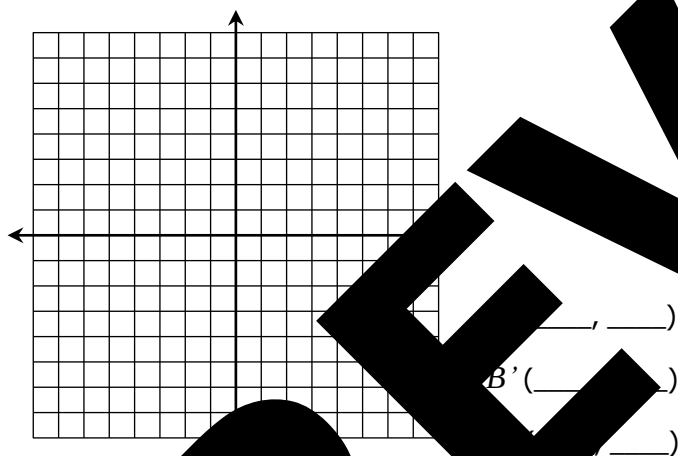
Directions: Determine if the shaded figure is a translation or reflection of the white figure. Describe the transformation.



Directions: Graph and label each figure and its image under the given transformation. Give the coordinates of the image.

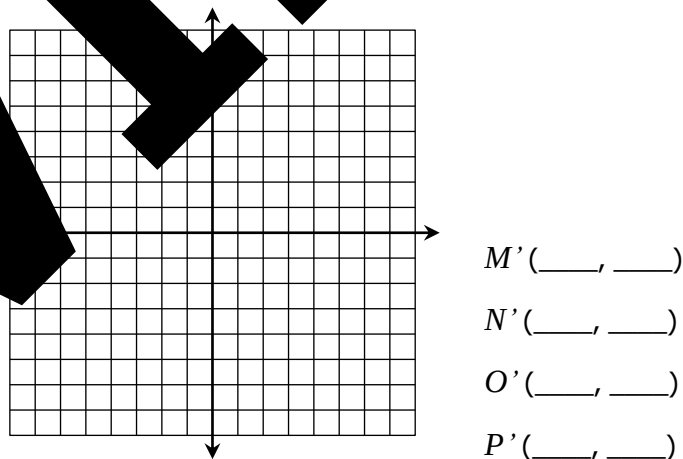
14. Triangle ABC with vertices $A(1, 2)$, $B(5, 3)$, and $C(2, 6)$:

- (a) reflected in the y -axis
(b) translated 5 units right and 2 units down



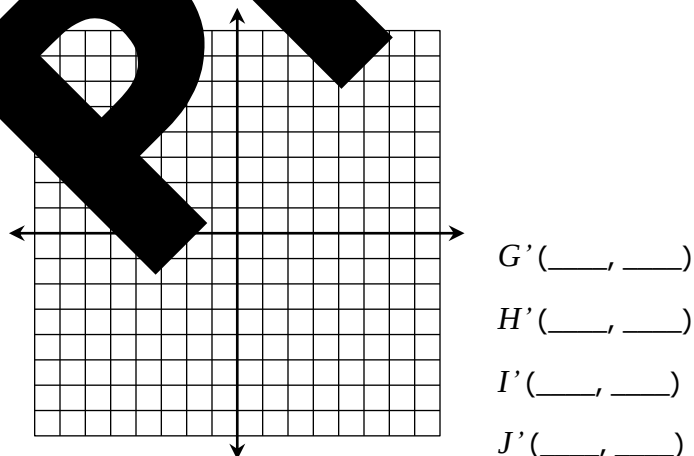
15. Quadrilateral $MNOP$ with vertices $M(-6, 5)$, $N(-4, 4)$, $O(0, 4)$, and $P(0, 5)$:

- (a) translated 4 units down and 2 units right
(b) reflected in the y -axis



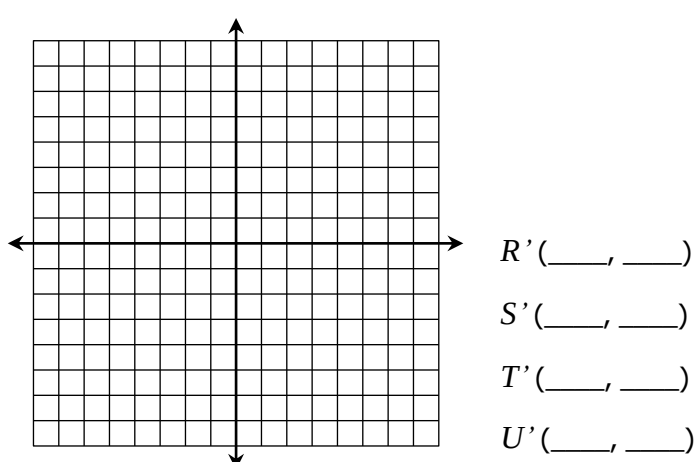
16. Parallelogram $GHIJ$ with vertices $G(-6, 2)$, $H(1, 2)$, $I(2, 4)$, and $J(-5, 4)$:

- (a) translated 3 units up and 3 units right
(b) reflected in the x -axis



17. Trapezoid $RSTU$ with vertices $R(-7, 0)$, $S(-4, 0)$, $T(-2, -2)$ and $U(-3, -4)$:

- (a) reflected in the y -axis
(b) translated 3 units left and 6 units up



Name: _____

Math 7

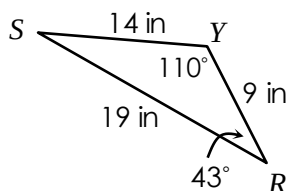
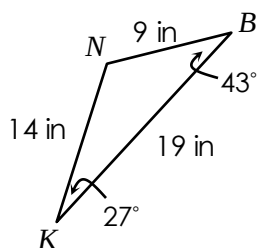
Date: _____ Per: _____

Unit 6: Geometry

Quiz 6-3: Congruent Polygons & Transformations

Determine if the polygons are congruent. If yes, write a congruency statement.

1.

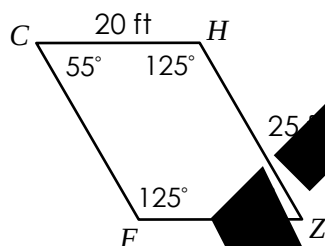
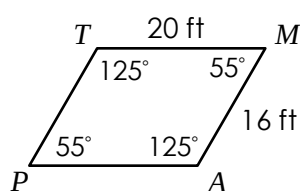


1. _____

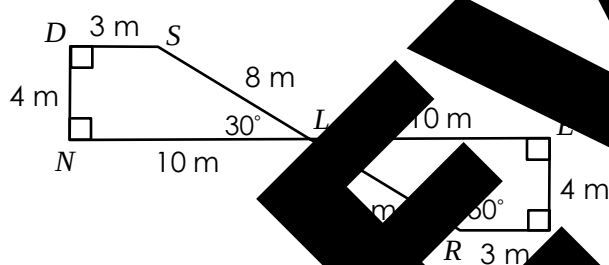
2. _____

3. _____

2.



3.



4. If quadrilateral $KNAB \cong$ quadrilateral HMK , identify the congruent parts.

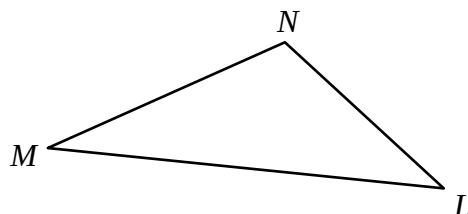
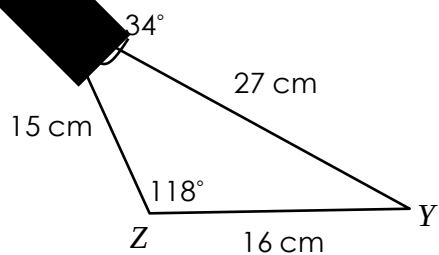
4. $\angle P \cong$ _____

$\angle K \cong$ _____

$\overline{TL} \cong$ _____

$\overline{DK} \cong$ _____

If $\triangle LMN \cong \triangle LMN$, find each measure.



5. $m\angle N =$ _____

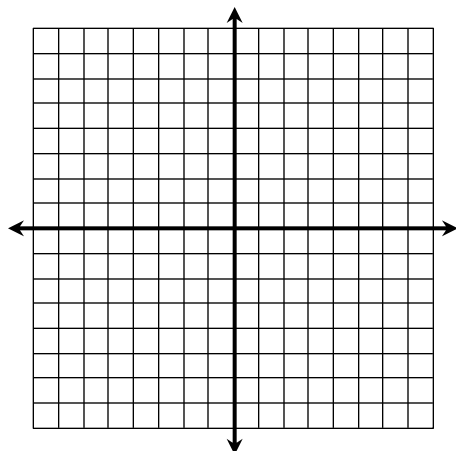
$m\angle M =$ _____

$MN =$ _____

$NL =$ _____

Graph each figure and its image under the given transformation(s). Give the new coordinates.

6. Triangle JKL with vertices $J(1, -2)$, $K(3, 4)$, and $L(7, -5)$; translated four units up and three units left

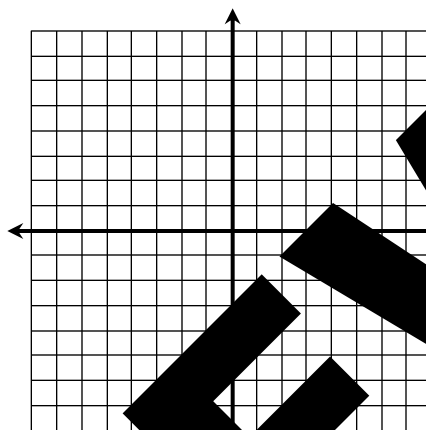


$J'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

$K'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

$L'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

7. Rectangle $CDEF$ with vertices $C(-7, -3)$, $D(-1, 0)$, $E(0, -2)$, and $F(-6, -5)$; reflected in the x -axis



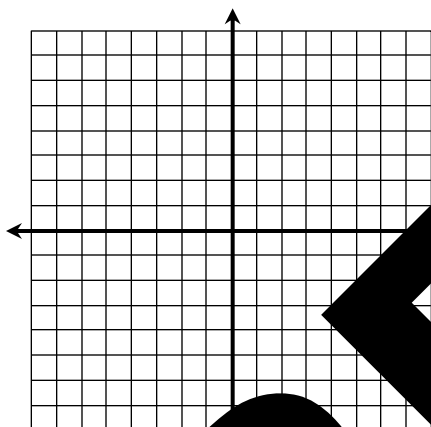
$C'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

$D'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

$E'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

$F'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

8. Trapezoid $RSTU$ with vertices $R(3, -3)$, $S(5, -1)$, $T(8, -3)$, and $U(3, -8)$; reflected in the y -axis



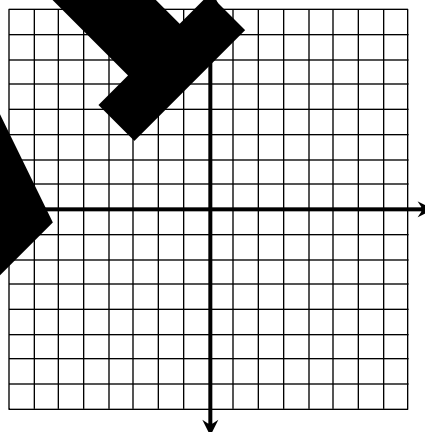
$R'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

$S'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

$T'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

$U'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

9. Triangle XYZ with vertices $X(6, 6)$, $Y(-1, 8)$, and $Z(2, -2)$; translated 2 units right and one unit down, then reflected in the x -axis

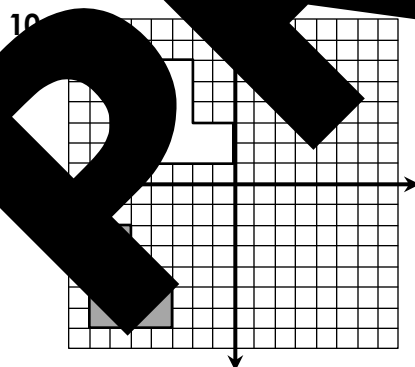


$X'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

$Y'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

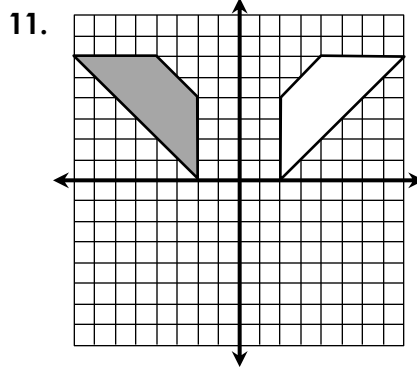
$Z'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

Determine whether the transformation of the white figure to the shaded figure is a translation or a reflection. Write a rule to describe the transformation.



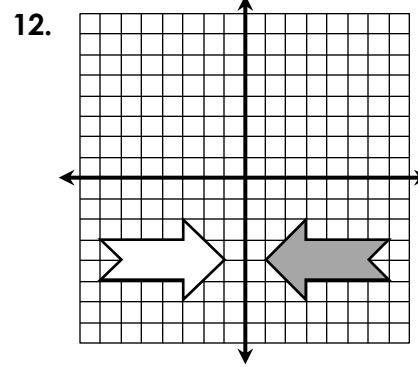
☐ Translation ☐ Reflection

Rule:



☐ Translation ☐ Reflection

Rule:



☐ Translation ☐ Reflection

Rule:

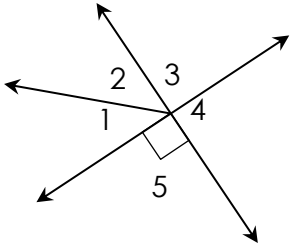
Unit 6 Test Study Guide (Geometry)

Name: _____

Date: _____ Per: _____

Topic 1: Angle Relationships

1. Using the diagram below, classify the angle pair as vertical, adjacent, complement, supplementary, or congruent angles. Use all names that apply.



a) $\angle 3$ and $\angle 4$

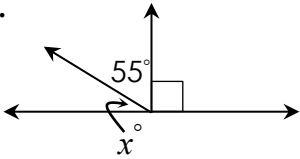
b) $\angle 1$ and $\angle 2$

c) $\angle 3$ and $\angle 5$

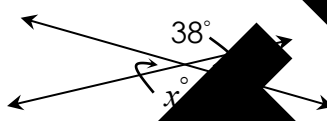
d) $\angle 1$ and $\angle 5$

Find each measure.

2.

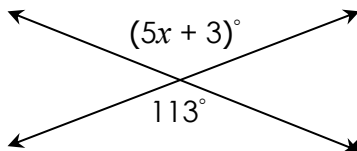


3.

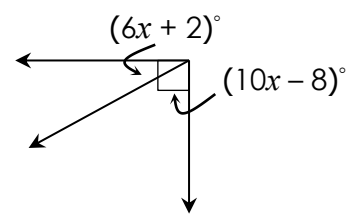


Find the value of x .

5.

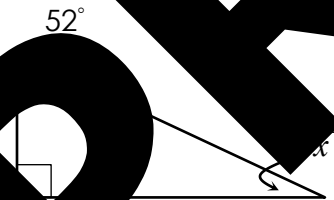


6.

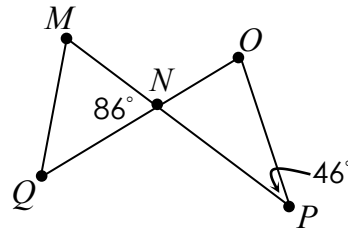


Topic 2: Triangles

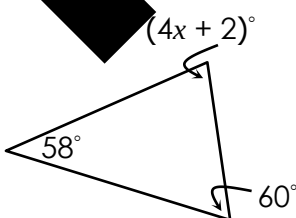
8. Find the value of x .



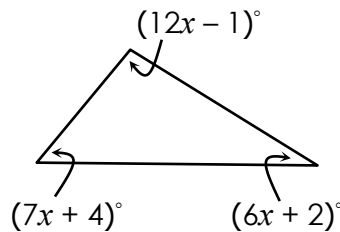
9. Given the diagram below, find $m\angle NOP$.

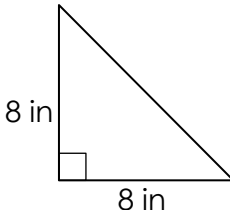
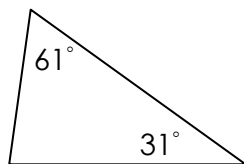
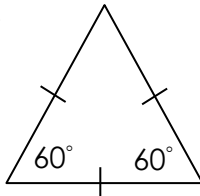


10. Find the value of x .

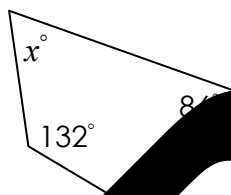
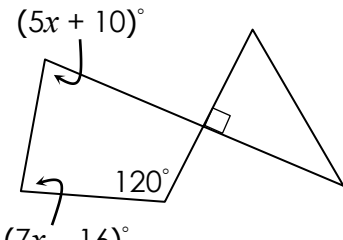
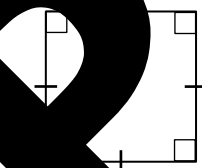
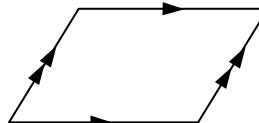
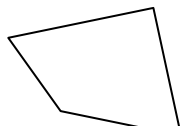
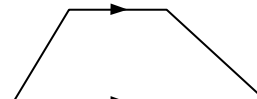


11. Find the value of x .



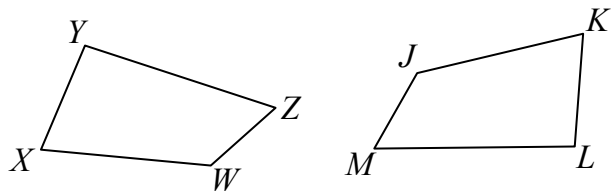
Classify each triangle by its angles and sides.		
12. 	13. 	14. 
Construct each triangle using the given measures.		
15. side lengths of 4 cm and 5 cm	16. side lengths of 2 cm and 3 cm and included angle of 40°	
Determine if the following side lengths could form a triangle. Prove your answer with an inequality.		
17. 17 cm, 18 cm, 35 cm	18. 9 in, 9 in, 1 in	19. 22 mm, 24 mm, 45 mm

Topic 3: Quadrilaterals

20. Find the missing angle measure. 	21. Find the value of x. 	
Classify each figure using all names that apply.		
 ☐ Quadrilateral ☐ Trapezoid ☐ Isosceles Trapezoid ☐ Parallelogram ☐ Rectangle ☐ Rhombus ☐ Square	23.  ☐ Quadrilateral ☐ Trapezoid ☐ Isosceles Trapezoid ☐ Parallelogram ☐ Rectangle ☐ Rhombus ☐ Square	
Classify each figure using the name that best describes it.		
24. 	25. 	26. 

Topic 4: Congruent Polygons

27. If quadrilateral $WXYZ \cong$ quadrilateral $JKLM$, identify the congruent parts.



$\angle W \cong$

$\overline{JK} \cong$

$\angle X \cong$

$\overline{KL} \cong$

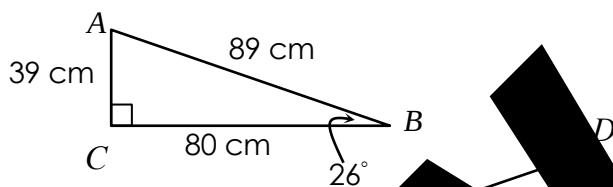
$\angle Y \cong$

$\overline{LM} \cong$

$\angle Z \cong$

$\overline{JM} \cong$

28. If $\triangle ABC \cong \triangle DFE$, find each measure.



$m\angle D =$

$m\angle E =$

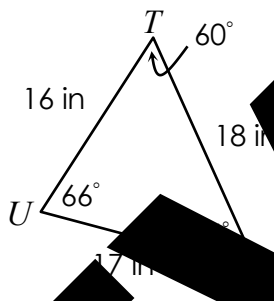
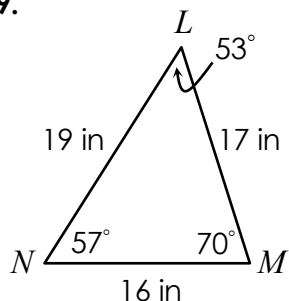
$m\angle F =$

$DF =$

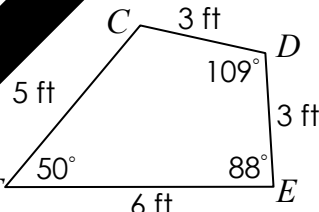
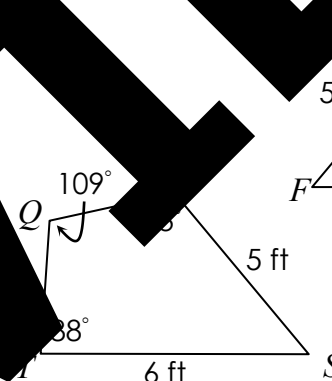
$EF =$

Determine if the polygons are congruent. If yes, write a congruence statement.

29.



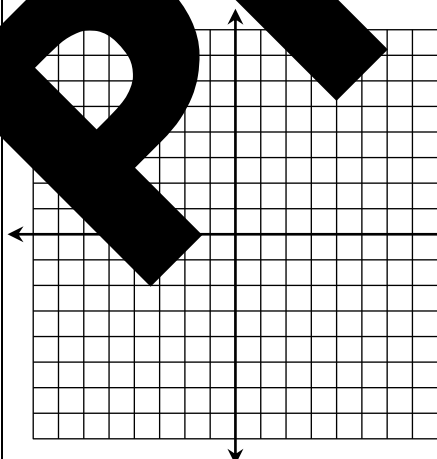
30.



Topic 5: Transformations

Graph and label the figure and its image under the given transformation. Then, give the new coordinates.

31. Square $MNOP$ with vertices $M(-2, 1)$, $N(1, 3)$, $O(-2, 3)$, and $P(-1, 1)$: translated 4 units down along the y-axis.



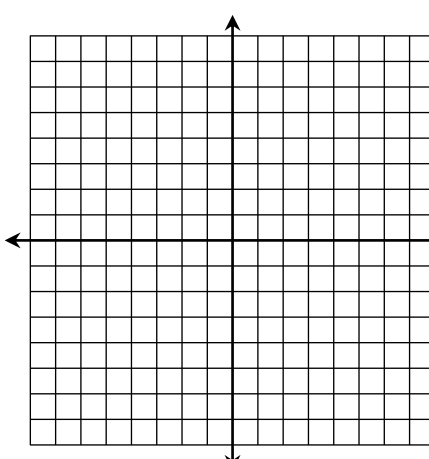
$M'(_, _)$

$N'(_, _)$

$O'(_, _)$

$P'(_, _)$

32. Trapezoid $WXYZ$ with vertices $W(4, -2)$, $X(7, -1)$, $Y(7, -5)$, and $Z(1, -7)$: reflected in the x-axis.



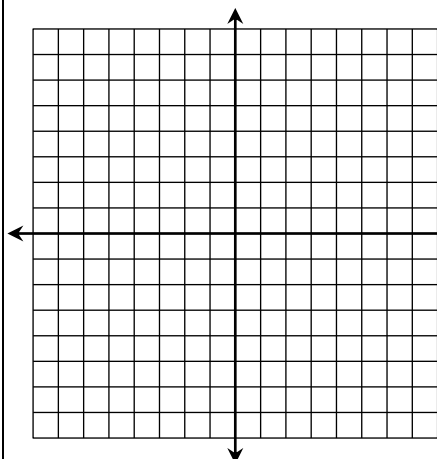
$W'(_, _)$

$X'(_, _)$

$Y'(_, _)$

$Z'(_, _)$

- 33.** Quadrilateral $ABCD$ with vertices $A(3, -1)$, $B(6, -5)$, $C(2, -7)$, and $D(1, -3)$; translated 6 units up and reflected in the y -axis.



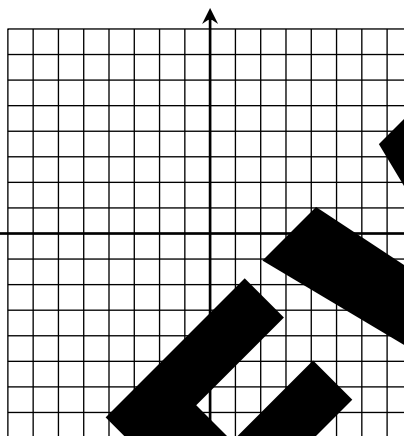
$A'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

$B'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

$C'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

$D'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

- 34.** Triangle QRS with vertices $Q(-5, 7)$, $R(0, 4)$, and $S(-4, 2)$; reflected in the x -axis, then translated six units right and two units up



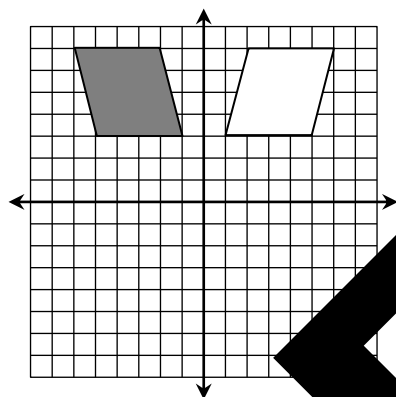
$Q'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

$R'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

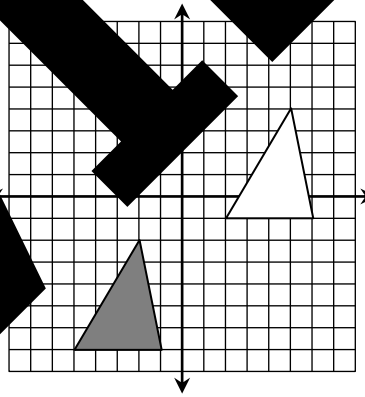
$S'(\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

Determine if the shaded figure is a translation and/or reflection of the white figure. If yes, describe the transformation.

35.



36.



Describe the translation of the point to its image.

- 37.** $A(-2, 5) \rightarrow A'(5, 1)$

- 39.** $R(-4, -3) \rightarrow R'(4, 3)$

Point N is the image of M after a translation of 3 units down and 2 units left. Give the coordinates of M .

- 41.** $P'(1, -3)$ is the image of P after a translation of 6 units right and 4 units up. Give the coordinates of P .

Describe the reflection of the point to its image.

- 42.** $T(1, 7) \rightarrow T'(-1, 7)$

- 43.** $Q(-2, -2) \rightarrow Q'(-2, 2)$

- 44.** $W(-3, 5) \rightarrow W'(3, 5)$

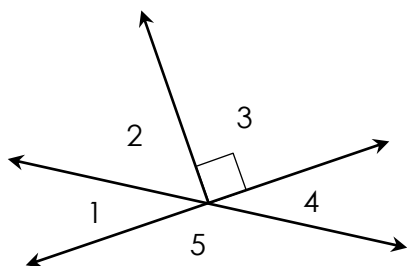
Name: _____

Date: _____ Per: _____

Unit 6 Test

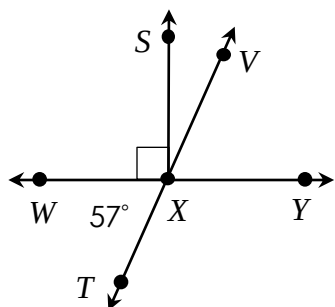
Geometry

1. Given the diagram below, which statements are true? Check all that apply.



- ☐ $\angle 1$ and $\angle 4$ are vertical and congruent angles.
- ☐ $\angle 1$ and $\angle 5$ are adjacent and complementary angles.
- ☐ $\angle 2$ and $\angle 4$ are vertical and complementary angles.
- ☐ $\angle 4$ and $\angle 5$ are adjacent and supplementary angles.

For questions 2-4, find each angle measure using the diagram below.



2. $m\angle TXY$

$m\angle TXY =$ _____

3. $m\angle VXY$

$m\angle VXY =$ _____

4. $m\angle SXV$

$m\angle SXV =$ _____

5. If $\angle 1$ and $\angle 2$ are vertical angles and $m\angle 1 = 108^\circ$, find $m\angle 2$.
If $\angle A$ and $\angle B$ are complementary angles and $m\angle B = 68^\circ$, find $m\angle A$.

$m\angle 2 =$ _____

$m\angle A =$ _____

If $\angle P$ and $\angle Q$ are complementary angles and $m\angle P = 45^\circ$, construct $\angle Q$, give its measure, and classify it as acute, right, obtuse, or straight.

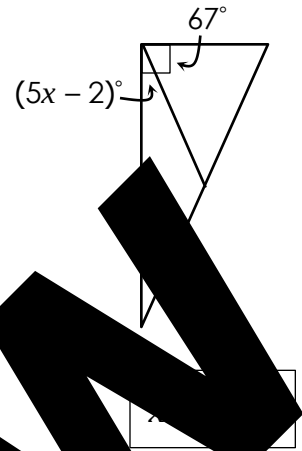
$m\angle Q =$ _____

Classify: _____

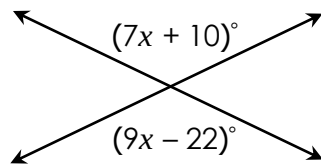
8. Which statement is always true?

- A. Two right angles are complementary.
- B. Given two vertical in which one is acute, the other must be obtuse.
- C. If two angles are complementary, then they are both acute.
- D. If two angles are supplementary, then they are adjacent.

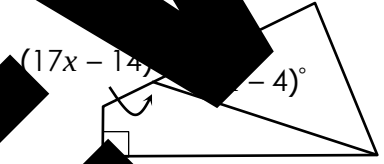
9. Solve for x .



10. Solve for x .



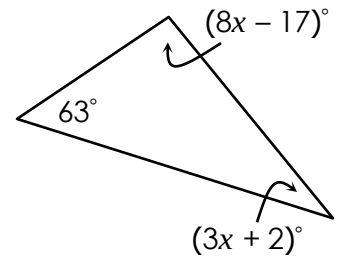
11. Solve for x .



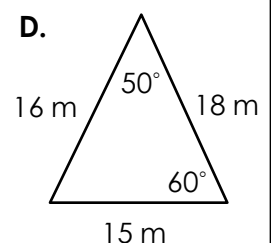
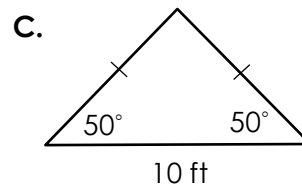
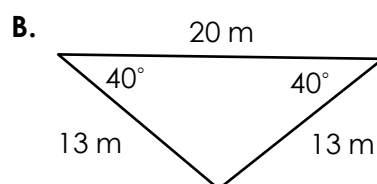
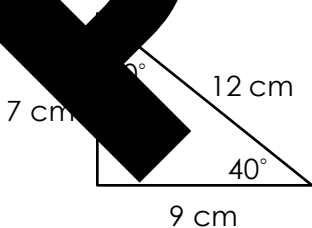
12. Given the diagram below, find $m\angle M$. Solve for x .



- A. 107°
- B. 109°
- C. 112°
- D. 115°



13. Which diagram shows an acute isosceles triangle?



For questions 15-16, construct a triangle with the given measurement. Label all side and angle measures, then classify the triangle by its angles and sides.

15. A triangle with two 35° angles.

16. A triangle with two side lengths measuring 2 cm and 4 cm, with a 68° angle between them.

Classify:

Classify:

17. Which side lengths could form a triangle? Check all that apply.

☐	5 cm, 8 cm, 13 cm
☐	3 m, 3 m, 6 m
☐	14 in, 17 in, 31 in
☐	10 ft, 24 ft, 34 ft
☐	4.5 m, 5.5 m, 8 m

18. Which angle measures create a unique triangle?

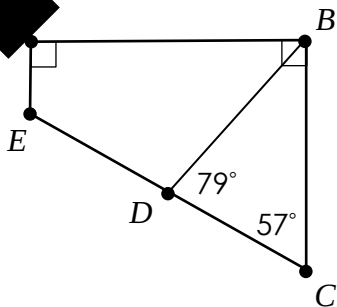
A. A triangle with two 70° angles.

B. A triangle with sides measuring 6 feet and 8 feet.

C. A right triangle with one side that measures 4 inches.

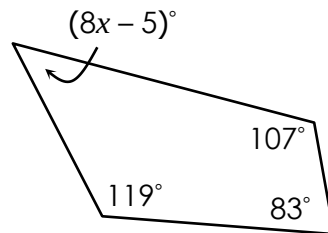
D. A triangle with two sides measuring 3 meters and a 150° degree between them.

19. In the diagram below, find $m\angle AED$.



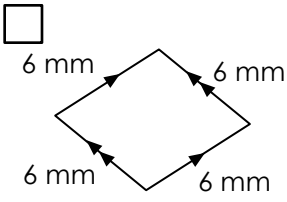
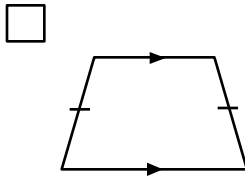
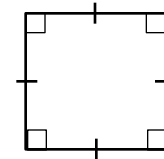
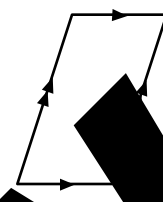
- A. 110°
- B. 116°
- C. 118°
- D. 123°

20. Solve for x .



$x =$

21. Which shape is both a parallelogram and rhombus? Check all that apply.

☐ 	☐ 	☐ 	☐ 
--	--	---	--

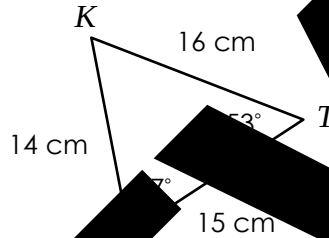
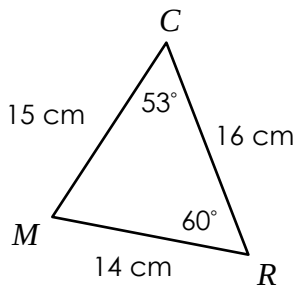
22. Alex drew a shape with four sides and four right angles. Which figure best describes the shape that Alex drew?

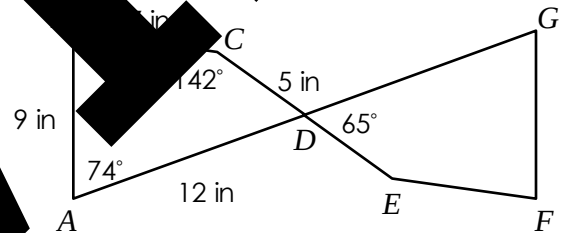
- A. Quadrilateral
- B. Parallelogram
- C. Rectangle
- D. Square

23. Which shape is not possible?

- A. A parallelogram with four right angles.
- B. A rectangle with two congruent sides.
- C. A rhombus that is not a square.
- D. A square that is not a rectangle.

24. Complete the congruency statement below. $\triangle KTR \cong$ quadrilateral $GFED$, if each measure is equal.



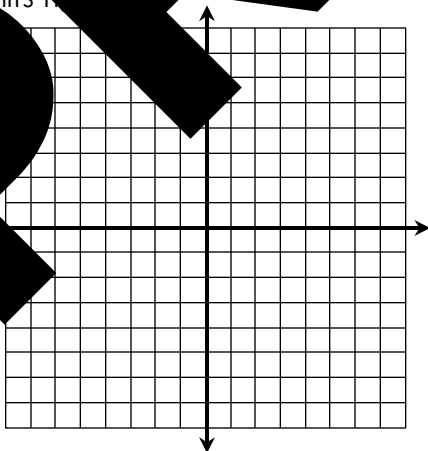


$m\angle F =$

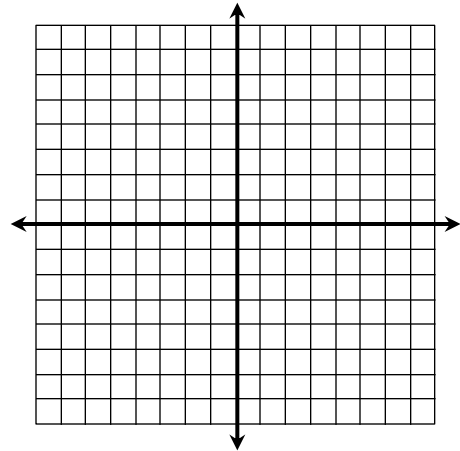
$EF =$

For questions 26 and 27, draw the figure and its image under the given transformation(s). Then, give the coordinates of the vertices of the image.

26. $\triangle RST$ with vertices $R(-4, 7)$, $S(0, 3)$, and $T(-6, -1)$ is translated two units down.



27. $\triangle FGH$ with vertices $F(1, 2)$, $G(6, 1)$, and $H(8, 7)$: reflected over the x-axis.



R' :

S' :

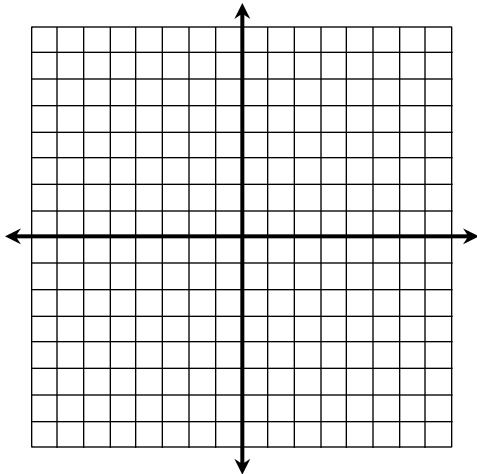
T' :

F' :

G' :

H' :

28. Trapezoid $KLMN$ with vertices $K(-5, -2)$, $L(-2, -1)$, $M(-1, -4)$, and $N(-7, -6)$: reflected over the y -axis, then translated one unit left and three units up



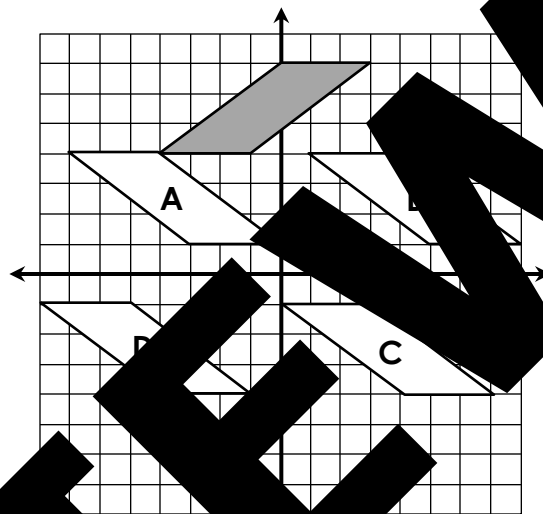
K' :

L' :

M' :

N' :

29. If the shaded parallelogram is translated three units down and four units left, then reflected over the x -axis, which parallelogram represents the image? Write the letter in the box.



30. Point $N'(-3, 1)$ is the image of point $N(3, -5)$. Which of the following transformations occurred?

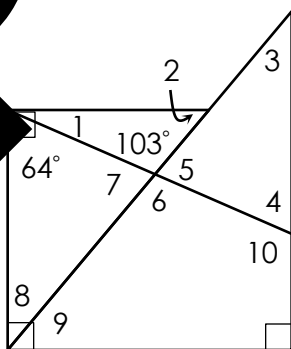
- A. Point N was reflected over the x -axis.
- B. Point N was reflected over the y -axis.
- C. Point N was translated six units up and six units left.
- D. Point N was translated two units up and six units left.

31. Point $B'(-5, -2)$ is the image of point $B(5, 2)$ after a reflection. Name the type of reflection.

32. Point $K'(-3, 6)$ is the image of point K after a translation of five units up and seven units left. Give the coordinates of point K .

(,)

ONUS: Find each angle measure.



$m\angle 1 =$

$m\angle 6 =$

$m\angle 2 =$

$m\angle 7 =$

$m\angle 3 =$

$m\angle 8 =$

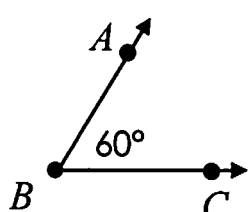
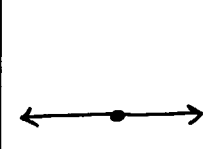
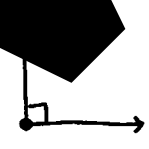
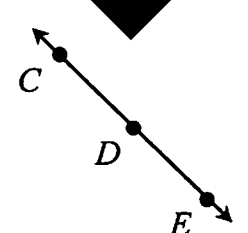
$m\angle 4 =$

$m\angle 9 =$

$m\angle 5 =$

$m\angle 10 =$

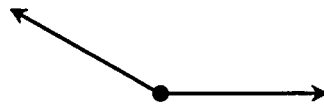
Name:	Date:
Topic:	Class:

Main Ideas/Questions	Notes/Examples				
ANGLES 	Parts of an Angle: - An angle is formed by two <u>rays</u> with a common endpoint. - This common endpoint is called the <u>Vertex</u>. - The rays are called the <u>sides</u>. Naming Angles: - Symbol for an angle: <u>$\angle$</u> - Angles are typically named using <u>three</u> letters. *The <u>middle</u> letter must always represent the <u>vertex</u>. - Angles can also be named using just the vertex if it is the only angle located at that vertex. Angle Measures: - When referring to the measure of an angle, use a lowercase <u>m</u>. Example: <u>$\angle A = 60^\circ$</u>				
TYPES OF ANGLES	 <table><tr><td>Acute ($m < 90^\circ$)</td><td>Right ($m = 90^\circ$)</td><td>Obtuse ($90^\circ < m < 180^\circ$)</td><td>Straight ($m = 180^\circ$)</td></tr></table>	Acute ($m < 90^\circ$)	Right ($m = 90^\circ$)	Obtuse ($90^\circ < m < 180^\circ$)	Straight ($m = 180^\circ$)
Acute ($m < 90^\circ$)	Right ($m = 90^\circ$)	Obtuse ($90^\circ < m < 180^\circ$)	Straight ($m = 180^\circ$)		
Example 1: 	a) Name the vertex of the angle. <u>Q</u> b) Name the sides of the angle. <u>$\overrightarrow{QR}$, $\overrightarrow{QP}$</u> c) Give three ways to name the angle. <u>$\angle RQP$</u>, <u>$\angle PQR$</u>, <u>$\angle Q$</u> d) Classify the angle: <u>acute</u>				
Example 2: 	a) Name the vertex of the angle. <u>D</u> b) Name the sides of the angle. <u>$\overrightarrow{DC}$, $\overrightarrow{DE}$</u> c) Give three ways to name the angle. <u>$\angle CDE$</u>, <u>$\angle EDC$</u>, <u>$\angle D$</u> d) Classify the angle: <u>straight</u>				

USING A PROTRACTOR

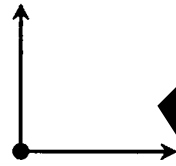
Directions: Use a protractor to find the measure of each angle. Then, classify the angle as acute, obtuse, right or straight.

3.



150°; obtuse

4.



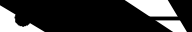
90°; right

5.



180°; straight

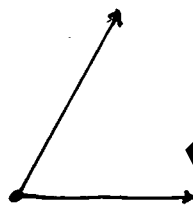
6.



25°; acute

Directions: Use a protractor to draw angles with the given measurements. Then, classify the angle as acute, obtuse, right or straight.

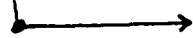
7. 60°



8. 140°



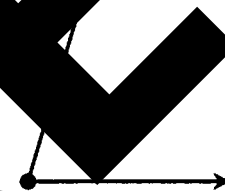
9. 90°



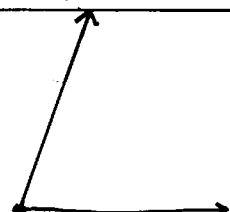
CONGRUENT ANGLES

Congruent angles have the same measure.

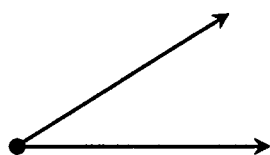
Directions: Using a protractor, construct an angle congruent to each given angle.



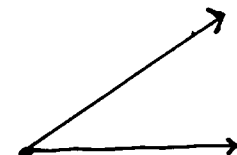
73°



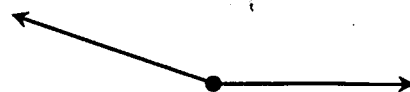
11.



35°



12.



162°

Name: _____

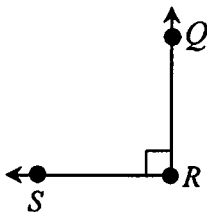
Unit 6: Geometry

Date: _____ Per: _____

Homework 1: Introduction to Angles

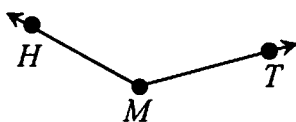
Directions: For each angle, a) name the vertex, b) name the sides, c) name the angle three ways, and d) classify the angle.

1.



- a) Name the vertex of the angle. R
 b) Name the sides of the angle. $\overrightarrow{RS}$, $\overrightarrow{RQ}$
 c) Give three ways to name the angle.
 $\angle QRS$, $\angle SRQ$
 $\angle R$
 d) Classify the angle: right

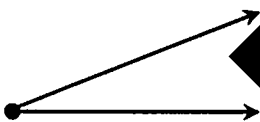
2.



- a) Name the vertex of the angle. M
 b) Name the sides of the angle. $\overrightarrow{MH}$, $\overrightarrow{MT}$
 c) Give three ways to name the angle.
 $\angle HMT$, $\angle TMH$
 $\angle M$
 d) Classify the angle: obtuse

Directions: Use a protractor to find the measure of each angle. Then, classify the angle as acute, obtuse, right or straight.

3.



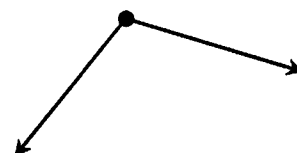
21°; acute

4.



180°; straight

5.



112°; obtuse

Directions: Use a protractor to draw angles with the given measurements. Then, classify the angle as acute, obtuse, right or straight.

6. 65°



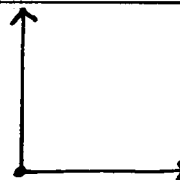
acute

7. 140°



Obtuse

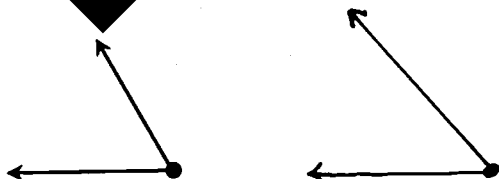
8. 90°



right

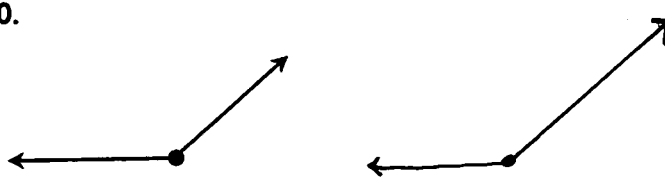
Directions: Using a protractor, construct an angle congruent to each given angle.

9.



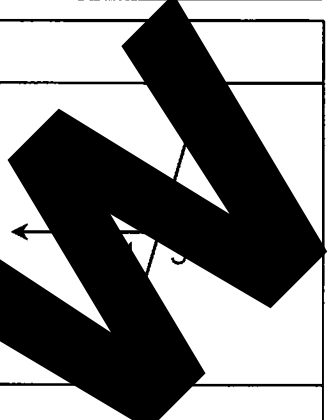
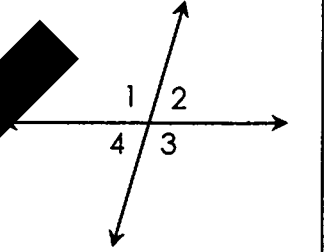
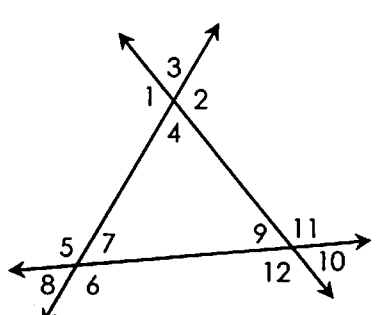
60°

10.



140°

Name:	Date:
Topic:	Class:

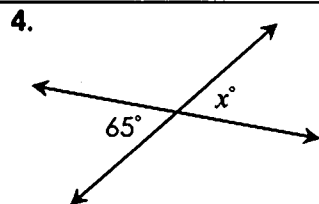
Main Ideas/Questions	Notes/Examples	
ADJACENT ANGLES	Adjacent angles are two angles that share a common <u>vertex</u> and <u>side</u> . They are <u>next</u> to each other.	
	Examples: $\angle 1$ and $\angle 2$, $\angle 2$ and $\angle 3$ and $\angle 4$, $\angle 1$ and $\angle 4$	
VERTICAL ANGLES	Vertical angles are two angles that are <u>across</u> of each other when lines intersect.	
	Vertical angles are <u>congruent</u> !	
NAMING ANGLES	Directions: Look at the diagram and name two pairs of adjacent angles and two pairs of vertical angles.	
	1. Adjacent Angles: $\angle ABD$ and $\angle DBC$, $\angle DBC$ and $\angle CBE$, $\angle CBE$ and $\angle EBA$, $\angle EBA$ and $\angle ABD$	
	Vertical Angles: $\angle ABD$ and $\angle EBC$, $\angle DBC$ and $\angle ABE$	
	Adjacent Angles: $\angle PQS$ and $\angle SQV$, $\angle SQV$ and $\angle VQR$, $\angle VQR$ and $\angle RQT$, $\angle RQT$ and $\angle TQP$, $\angle TOP$ and $\angle PQS$	
	Vertical Angles: $\angle SQR$ and $\angle PQT$, $\angle RQT$ and $\angle SQP$	
	2. Given the diagram, classify each angle pair as vertical, adjacent, or neither.	
	a) $\angle 1$ and $\angle 4$ Adjacent	b) $\angle 7$ and $\angle 9$ Neither
	c) $\angle 5$ and $\angle 6$ Vertical	d) $\angle 11$ and $\angle 12$ Vertical
	e) $\angle 6$ and $\angle 7$ Adjacent	f) $\angle 4$ and $\angle 9$ Neither

FINDING ANGLE MEASURES

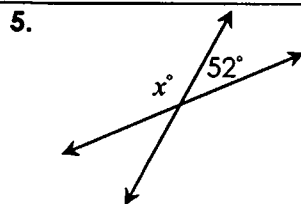
•Recall•

A right angle measures 90° and a straight angle measures 180° .

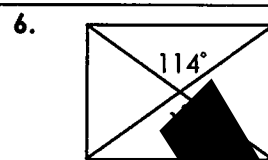
Directions: Tell whether the angles are adjacent or vertical, then find the value of x .



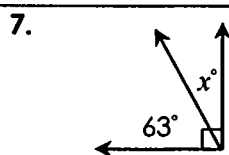
Vertical ; 65°



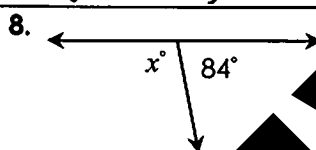
Adjacent ; 128°



Vertical ; 66°



Adjacent ; 27°



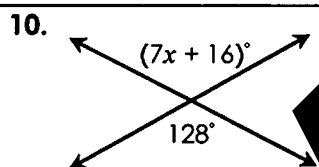
Adjacent ; 96°



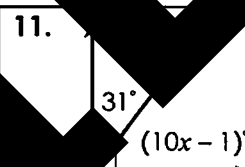
Adjacent ; 39°

USING ALGEBRA

Directions: Tell whether the angles are adjacent or vertical, then find the value of x .



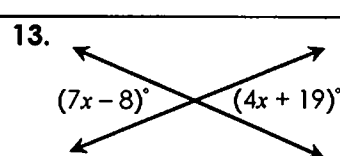
Vertical ; $7x + 16 = 128$
 $7x = 112$
 $x = 16$



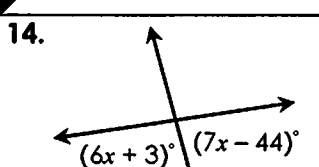
Adjacent ; $31 + 10x - 1 = 90$
 $10x + 30 = 90$
 $10x = 60$
 $x = 6$



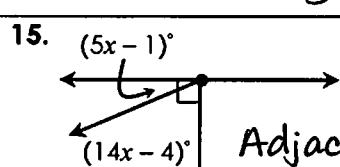
Adjacent ; $8x + 9 + 27 = 180$
 $8x + 36 = 180$
 $8x = 144$
 $x = 18$



Vertical ; $7x - 8 = 4x + 19$
 $3x - 8 = 19$
 $3x = 27$
 $x = 9$



Adjacent ; $6x + 3 + 7x - 44 = 180$
 $13x - 41 = 180$
 $13x = 221$
 $x = 17$



Adjacent ; $5x - 1 + 14x - 4 = 90$
 $19x - 5 = 90$
 $19x = 95$
 $x = 5$

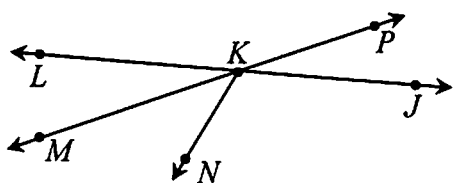
Name: _____

Unit 6: Geometry

Date: _____ Per: _____

Homework 2: Adjacent and Vertical Angles

1. Using the diagram, name two pairs of adjacent angles and two pairs of vertical angles.



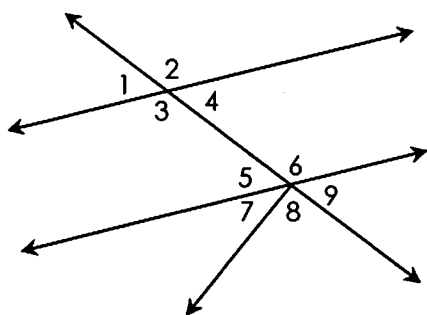
Adjacent Angles:

 $\angle LKP$ and $\angle PKJ$, $\angle PKJ$ and $\angle JKN$,
 $\angle JKN$ and $\angle NKM$, $\angle NKM$ and $\angle MKL$,
 $\angle MKL$ and $\angle LKP$

Vertical Angles:

 $\angle LKP$ and $\angle JKN$, $\angle JKN$ and $\angle NKM$, $\angle NKM$ and $\angle MKL$, $\angle MKL$ and $\angle LKP$

2. Given the diagram, classify each angle pair as vertical, adjacent, or neither.

a) $\angle 4$ and $\angle 6$

Neither

c) $\angle 2$ and $\angle 3$

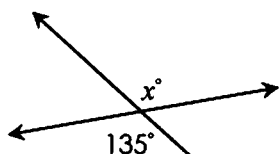
Vertical

e) $\angle 1$ and $\angle 5$

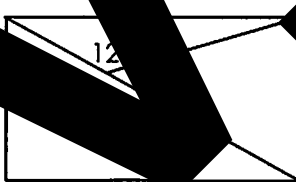
Neither

Directions: Tell whether the angles are adjacent, vertical, or neither. Find the value of x .

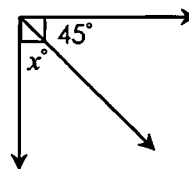
3.

Vertical; 135°

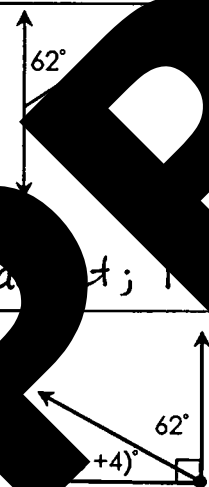
4.

Adjacent; 57°

5.

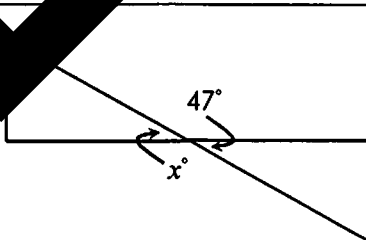
Adjacent; 45°

6.

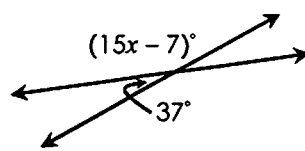
Adjacent; 135°

$$\begin{aligned} \text{Adjacent; } 6x+4+62 &= 90 \\ 6x+66 &= 90 \\ 6x &= 24 \\ x &= 4 \end{aligned}$$

7.

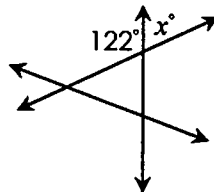
Vertical; 47°

10.

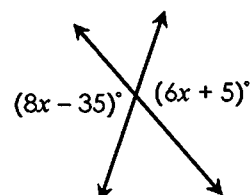


$$\begin{aligned} \text{Adjacent; } 15x-7+37 &= 180 \\ 15x+30 &= 180 \\ 15x &= 150 \\ x &= 10 \end{aligned}$$

8.

Adjacent; 58°

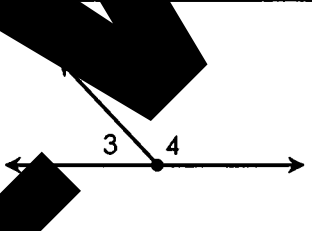
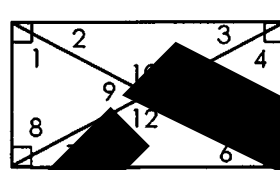
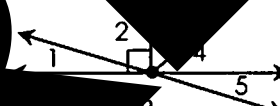
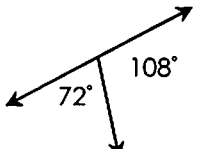
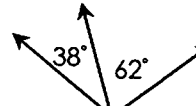
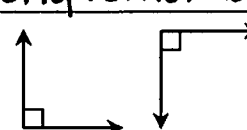
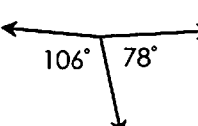
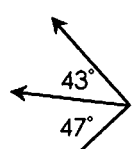
11.



$$\begin{aligned} \text{Vertical; } 8x-35 &= 6x+5 \\ 2x-35 &= 5 \\ 2x &= 40 \\ x &= 20 \end{aligned}$$

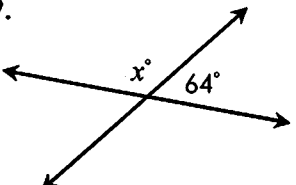
Name:	Date:
-------	-------

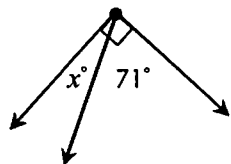
Topic:	Class:
--------	--------

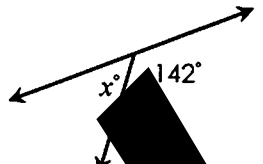
Main Ideas/Questions	Notes/Examples								
COMPLEMENTARY ANGLES	Complementary angles are any two angles in which the <u>Sum</u> of their measures is <u>90°</u> .								
	$m\angle 1 + m\angle 2 = 90^\circ$								
SUPPLEMENTARY ANGLES	Supplementary angles are any two angles in which the <u>Sum</u> of their measures is <u>180°</u> .								
	$m\angle 3 + m\angle 4 = 180^\circ$								
	Complementary and supplementary angles do not have to be adjacent!								
EXAMPLES	1. Using the diagram, name two pairs of complementary angles and two pairs of supplementary angles.								
									
	Complementary Angles: $\angle 1$ and $\angle 2$, $\angle 3$ and $\angle 4$, $\angle 5$ and $\angle 6$, $\angle 7$ and $\angle 8$								
	Supplementary Angles: $\angle 1$ and $\angle 2$, $\angle 3$ and $\angle 4$, $\angle 5$ and $\angle 6$, $\angle 7$ and $\angle 8$								
	In the diagram, classify each angle pair as complementary, supplementary, or neither.								
		<table><tr><td>a) $\angle 1$ and $\angle 6$</td><td>b) $\angle 1$ and $\angle 2$</td></tr><tr><td>Supplementary</td><td>Complementary</td></tr><tr><td>c) $\angle 4$ and $\angle 5$</td><td>d) $\angle 3$ and $\angle 4$</td></tr><tr><td>Neither</td><td>Complementary</td></tr></table>	a) $\angle 1$ and $\angle 6$	b) $\angle 1$ and $\angle 2$	Supplementary	Complementary	c) $\angle 4$ and $\angle 5$	d) $\angle 3$ and $\angle 4$	Neither
a) $\angle 1$ and $\angle 6$	b) $\angle 1$ and $\angle 2$								
Supplementary	Complementary								
c) $\angle 4$ and $\angle 5$	d) $\angle 3$ and $\angle 4$								
Neither	Complementary								
Directions: Classify each pair of angles as complementary, supplementary, or neither.									
	4. 	5. 							
Complementary	Supplementary	Neither							
6. 	7. 	8. 							
Supplementary	Neither	Complementary							

FINDING ANGLE MEASURES

For questions 9-11: Tell whether the angles are complementary or supplementary, then find the value of x .

9. 
Supplementary;
 $x = 116^\circ$

10. 
Complementary;
 $x = 19^\circ$

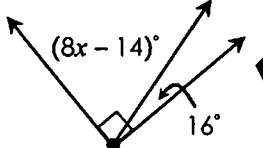
11. 
Supplementary;
 $x = 38^\circ$

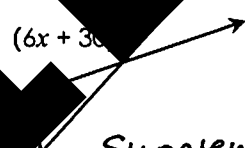
12. If $\angle A$ is supplementary to $\angle B$, and $m\angle A = 26^\circ$, find $m\angle B$.
 $x + 26 = 180$
 $-26 \quad -26$
 $x = 154^\circ$

13. If $\angle G$ is complementary to $\angle H$, and $m\angle G = 63^\circ$, find $m\angle H$.
 $x + 63 = 90$
 $-63 \quad -63$
 $x = 27^\circ$

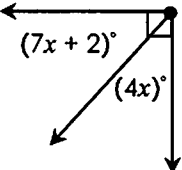
USING ALGEBRA

Directions: Tell whether the angles are complementary or supplementary, then find the value of x .

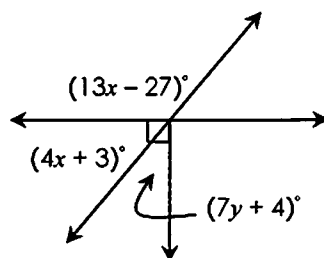
14. 
Complementary;
 $8x - 14 + 16 = 90$
 $8x + 2 = 90$
 $8x = 88$
 $x = 11$

15. 
Supplementary;
 $6x + 30 + 36 = 180$
 $6x + 66 = 180$
 $6x = 114$
 $x = 19$

16. 
Supplementary;
 $3x - 1 + 15 = 180$
 $3x + 14 = 180$
 $3x = 166$
 $x = 55.33$

17. 
Complementary;
 $7x + 2 + 4x = 90$
 $11x + 2 = 90$
 $11x = 88$
 $x = 8$

18. Find the value of x and the value of y .



$$13x - 27 + 4x + 3 = 180$$

$$17x - 24 = 180$$

$$17x = 204$$

$$x = 12$$

$$4(12) + 3 + 7y + 4 = 90$$

$$51 + 7y + 4 = 90$$

$$7y + 55 = 90$$

$$7y = 35$$

$$y = 5$$



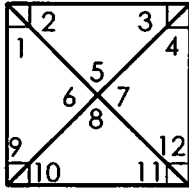
Name: _____

Unit 6: Geometry

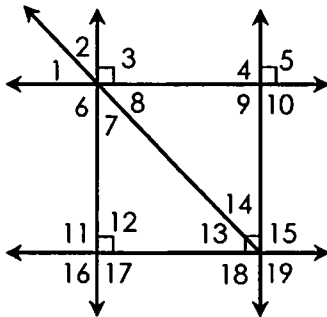
Date: _____ Per: _____

Homework 3: Complementary and Supplementary Angles

1. Using the diagram, name two pairs of complementary and two pairs of supplementary angles.

**Complementary Angles:**
 $\angle 1$ and $\angle 2$, $\angle 3$ and $\angle 4$, $\angle 12$ and $\angle 11$
 $\angle 9$ and $\angle 10$
Supplementary Angles:
 $\angle 6$ and $\angle 5$, $\angle 5$ and $\angle 7$, $\angle 7$ and $\angle 8$, $\angle 8$ and $\angle 4$

2. Given the diagram, classify each angle pair as complementary, supplementary, or neither.

a) $\angle 9$ and $\angle 10$

Supplementary

b) $\angle 7$ and $\angle 8$

Complementary

c) $\angle 13$ and $\angle 14$

Complementary

e) $\angle 11$ and $\angle 17$

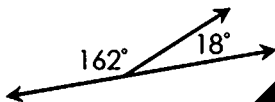
Supplementary

f) $\angle 2$ and $\angle 19$

Supplementary

Directions: Classify each pair of angles as complementary, supplementary, or neither.

3.

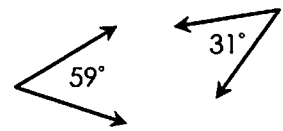


Supplementary



neither

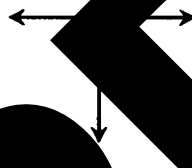
5.



Complementary

Directions: Tell if the angles are complementary or supplementary, then find the value of x .

6.



Supplementary

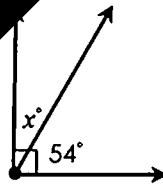
Supplementary

$$4x - 18 + 78 = 180$$

$$4x + 60 = 180$$

$$4x = 120$$

$$x = 30$$



Complementary

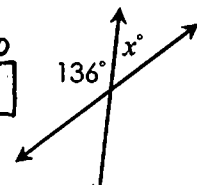
$$x + 54 = 90$$

$$x = 36$$

8.

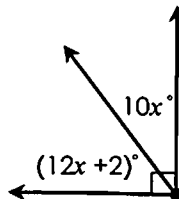
$$x + 136 = 180$$

$$x = 44$$



Supplementary

10.



Complementary

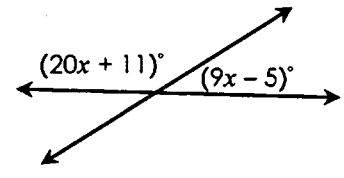
$$12x + 2 + 10x = 90$$

$$22x + 2 = 90$$

$$22x = 88$$

$$x = 4$$

11.



Supplementary

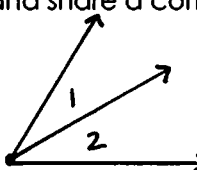
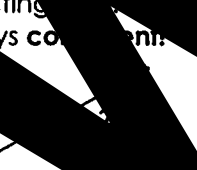
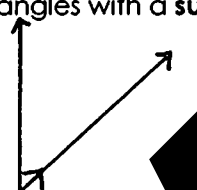
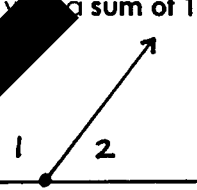
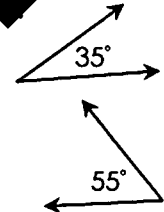
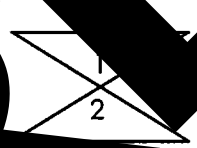
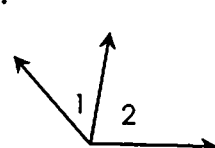
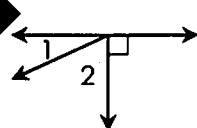
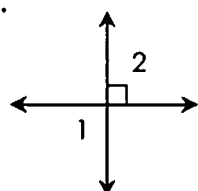
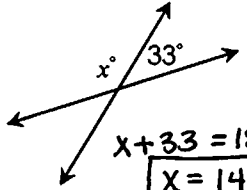
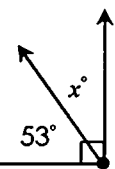
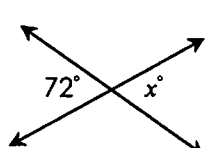
$$20x + 11 + 9x - 5 = 180$$

$$29x + 6 = 180$$

$$29x = 174$$

$$x = 6$$

Name:	Date:
Topic:	Class:

Main Ideas/Questions	Notes/Examples
ANGLE Relationships	Adjacent Two angles that are next to each other and share a common side. 
	Vertical Two angles across from each other on intersecting lines. 
	Complementary Two angles with a sum of 90°. 
	Supplementary Two angles with a sum of 180°. 
Classifying ANGLES	Directions: Classify the angle pair using all that apply.
	1.  ☒ Adjacent ☐ Vertical ☒ Complementary ☒ Supplementary ☐ Congruent  ☐ Adjacent ☐ Vertical ☒ Complementary ☐ Supplementary ☐ Congruent
	3.  ☐ Adjacent ☒ Vertical ☐ Complementary ☐ Supplementary ☒ Congruent 4.  ☒ Adjacent ☐ Vertical ☐ Complementary ☐ Supplementary ☐ Congruent
	5.  ☒ Adjacent ☐ Vertical ☒ Complementary ☐ Supplementary ☐ Congruent 6.  ☐ Adjacent ☒ Vertical ☐ Complementary ☒ Supplementary ☒ Congruent
	Directions: Find each missing measure.
	7.  $x + 33 = 180$ X = 147 8.  $x + 53 = 90$ X = 37 9.  X = 72
Finding MEASURES	

10.

$$x + 151 = 180$$

$$x = 29$$

$$y = 151$$

$$z = 29$$

11.

$$x + 29 = 180$$

$$x = 151$$

$$y + 29 = 90$$

$$y = 61$$

$$z + 61 = 180$$

$$z = 119$$

12.

$$y = 125$$

$$125 + x = 180$$

$$x = 55$$

13. If $\angle R$ and $\angle S$ are complementary angles and $m\angle R = 27^\circ$, find $m\angle S$.

$$27 + x = 90$$

$$x = 63$$

$$m\angle S = 63^\circ$$

14. If $\angle 1$ and $\angle 2$ are vertical angles and $m\angle 2 = 114^\circ$, find $m\angle 1$.

$$m\angle 1 = 114$$

15. If $\angle C$ and $\angle D$ are supplementary angles and $m\angle D = 49^\circ$, find $m\angle C$.

$$49 + x = 180$$

$$x = 131$$

Directions: Find the value of x .

16.

$$114 + (7x + 23) = 180$$

$$7x + 23 = 66$$

$$7x = 43$$

$$x = 13$$

17.

$$7x - 1 + 63 = 90$$

$$7x + 62 = 90$$

$$7x = 28$$

$$x = 4$$

18.

$$(x + 10) + (6x + 10) = 180$$

$$7x + 20 = 180$$

$$7x = 160$$

$$x = 21$$

19.

$$(9x + 16) + (12x - 5) = 180$$

$$21x - 1 = 180$$

$$21x = 181$$

$$x = 7$$

20.

$$(x + 7) + (7x - 13) = 90$$

$$8x - 6 = 90$$

$$8x = 96$$

$$x = 12$$

21.

$$(14x + 6) + (5x + 3) = 180$$

$$19x + 9 = 180$$

$$19x = 171$$

$$x = 9$$

Using
ALGEBRA

Angle Relationships Maze!

Directions: Begin at the **Start** box. Find each missing measure.
Use your solutions to navigate through the maze.

Start!

If $\angle 1$ and $\angle 2$ are vertical angles and $m\angle 2$ is 112° , find $m\angle 1$.
(67°)

x°
 23°
 $x + 23 = 90$
 $x = 67$

104°
 x°
 $104 + x = 180$
 $x = 76$

94°
 x°
 $94 + x = 180$
 $x = 86$

68°
 144°
 $144 + x = 180$
 $x = 36$

(112°)

57°
 42°
 x°
 $x + 42 = 90$
 $x = 48$

(76°)

24°
 160°
 x°
 $160 + x = 180$
 $x = 20$

94°
 x°
 $94 + x = 180$
 $x = 86$

If $\angle C$ and $\angle D$ are complementary angles and $m\angle C$ is 13° , find $m\angle D$.
 $13 + x = 90$
 $x = 77$

(36°)

89°
 138°
 x°
 $x + 138 = 180$
 $x = 42$

(48°)

42°
 x°
 $42 + x = 180$
 $x = 138$

If $\angle A$ and $\angle B$ are supplementary angles and $m\angle A$ is 89° , find $m\angle B$.
 $89 + x = 180$
 $x = 91$

(129°)

51°
 x°
 $x + 51 = 180$
 $x = 129$

(39°)

If $\angle 3$ and $\angle 4$ are vertical angles and $m\angle 3$ is 47° , find $m\angle 4$.
 $47 + x = 180$
 $x = 133$

(91°)

32°
 x°
 $32 + x = 180$
 $x = 148$

(133°)

43°
 6°
 $43 + x = 180$
 $x = 137$

(84°)

If $\angle M$ and $\angle N$ are complementary angles and $m\angle M$ is 6° , find $m\angle N$.
 $6 + x = 90$
 $x = 84$

(158°)

161°
 x°
 $161 + x = 180$
 $x = 19$

(174°)

If $\angle R$ and $\angle S$ are supplementary angles and $m\angle S$ is 12° , find $m\angle R$.
 $12 + x = 180$
 $x = 168$

(68°)

78°
 114°
 90°
 66°
 24°
 x°
 $66 + x = 90$
 $x = 24$

(50°)

40°
 x°
 $40 + x = 90$
 $x = 50$

(168°)

24°
 x°
 $24 + x = 90$
 $x = 66$

(90°)

End!

ANGLE RELATIONSHIPS RELAY PUZZLE

Directions: Beginning with the "Start" box, use the diagram to solve for x . Use the arrows to move through the page. Use the answer from the previous problem to fill in the box for the next problem. **STAPLE TO THE BACK OF THIS PAPER!**

Start!

1. $(9x - 2)^\circ$ 52°
 $9x - 2 = 52$
 $9x = 54$
 $x = 6$

2. 79° $(5x + 6)^\circ$
 $79 + 5x + 6 = 180$
 $5x + 85 = 180$
 $5x = 95$
 $x = 19$

3. $19x - 12$ $19x - 2$
 $x = 2$

4. 39° $(13x - 2)^\circ$
 $13x - 2 + 39 = 180$
 $13x + 37 = 180$
 $13x = 143$
 $x = 11$

5. $(11x - 25)^\circ$ 129°
 $11x - 25 = 129$
 $11x = 154$
 $x = 14$

6. 121° $(9x + 14)^\circ$
 $121 + 9x + 14 = 180$
 $9x + 135 = 180$
 $9x = 45$
 $x = 5$

7. 71° $(3x + 8)^\circ$
 $3x + 8 = 71$
 $3x = 63$
 $x = 21$

8. $(5x + 28)^\circ$ 22°
 $5x + 28 + 22 = 180$
 $5x + 50 = 180$
 $5x = 130$
 $x = 26$

9. $7x - 3$ $(5x - 21)^\circ$
 $7x - 3 + 5x - 21 = 180$
 $12x - 24 = 180$
 $12x = 204$
 $x = 17$

10. $(19x - 1)^\circ$ 4°
 $19x - 1 + 4 = 180$
 $19x + 3 = 180$
 $19x = 177$
 $x = 9$

11. $(5x - 11)^\circ$ $(9x + 3)^\circ$
 $5x - 11 + 9x + 3 = 180$
 $14x - 8 = 180$
 $14x = 188$
 $x = 13$

12. $(7x + 4)^\circ$ $(11x - 4)^\circ$
 $7x + 4 + 11x - 4 = 180$
 $18x = 180$
 $x = 10$

13. $(7x + 10)^\circ$ $(15x - 8)^\circ$
 $7x + 10 + 15x - 8 = 180$
 $22x + 2 = 180$
 $22x = 178$
 $x = 8$

14. $(10x + 4)^\circ$ $(12x - 26)^\circ$
 $10x + 4 + 12x - 26 = 180$
 $22x - 22 = 180$
 $22x = 202$
 $x = 9$

15. $(2x + 15)^\circ$ 15°
 $2x + 15 + 15 = 180$
 $2x + 30 = 180$
 $2x = 150$
 $x = 75$

16. $(5x + 17)^\circ$ 12°
 $5x + 17 + 12 = 180$
 $5x + 29 = 180$
 $5x = 151$
 $x = 30$

End!

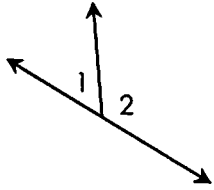
Name: _____

Unit 6: Geometry

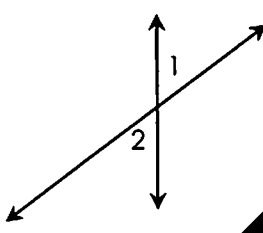
Date: _____ Per: _____

Homework 4: Angle Relationships

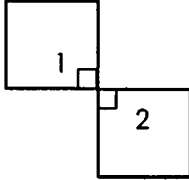
Directions: Classify the angle pair using all names that apply.

1. 

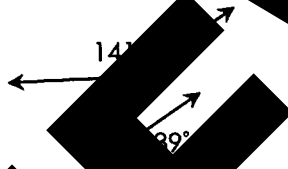
☒ Adjacent
☐ Vertical
☐ Complementary
☒ Supplementary
☐ Congruent

2. 

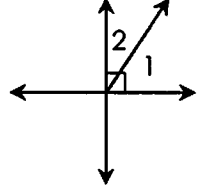
☐ Adjacent
☒ Vertical
☐ Complementary
☐ Congruent

3. 

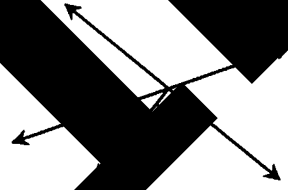
☐ Adjacent
☒ Vertical
☐ Complementary
☒ Supplementary
☒ Congruent

4. 

☐ Adjacent
☐ Vertical
☐ Complementary
☒ Supplementary
☐ Congruent

5. 

☒ Adjacent
☐ Vertical
☒ Complementary
☐ Supplementary
☐ Congruent

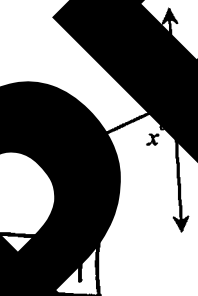
6. 

☒ Adjacent
☐ Vertical
☐ Complementary
☐ Supplementary
☐ Congruent

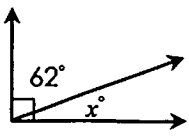
Directions: Determine whether the statement is always, sometimes or never true.

7. If two angles are vertical angles, they share a side. Never
8. Two angles with a sum of 90 are complementary angles. Always
9. If two angles are supplementary, then they are right angles. Sometimes

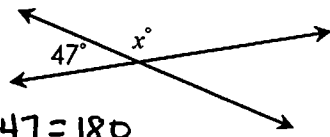
Directions: Find each missing measure.

10. 

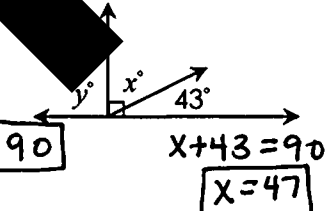
$x + 11 = 180$
 $x = 169$

11. 

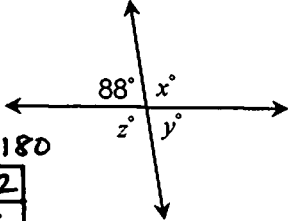
$62 + x = 90$
 $x = 28$

12. 

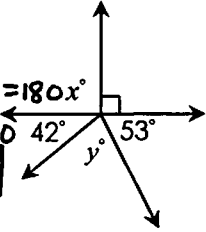
$x + 47 = 180$
 $x = 133$

13. 

$y = 90$
 $x + 43 = 90$
 $x = 47$

14. 

$x + 88 = 180$
 $x = 92$
 $y = 88$
 $z = 92$

15. 

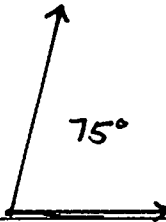
$x = 90$
 $42 + y + 53 = 180$
 $y + 95 = 180$
 $y = 85$

Directions: Use your protractor to construct an angle with the given conditions.

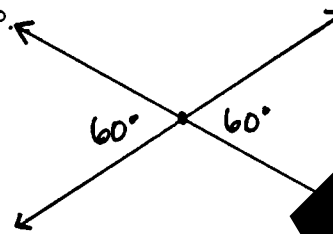
16. If $m\angle A$ is 105° , construct an angle supplementary to $\angle A$.

$$x + 105 = 180$$

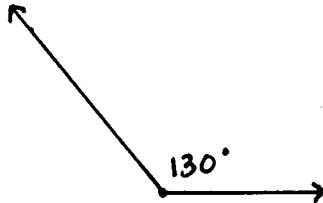
$$x = 75^\circ$$



17. Construct a pair of vertical angles that are 60° .



18. If $m\angle S$ is 130° , construct an angle congruent to $\angle S$.



19. If $m\angle R$ is 25° , construct an angle complementary to $\angle R$.

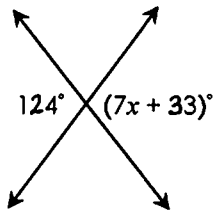
$$x + 25 = 90$$

$$x = 65^\circ$$



Directions: Find the value of x .

20.

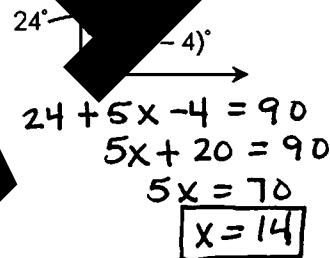


$$7x + 33 = 124$$

$$7x = 91$$

$$x = 13$$

21.



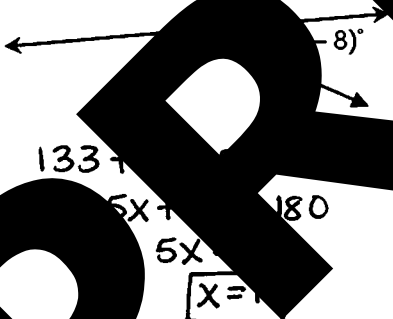
$$24 + 5x - 4 = 90$$

$$5x + 20 = 90$$

$$5x = 70$$

$$x = 14$$

22.



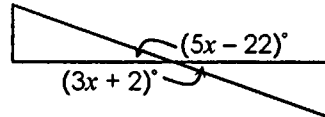
$$7x - 4 + 12x + 13 = 180$$

$$19x + 9 = 180$$

$$19x = 171$$

$$x = 9$$

23.



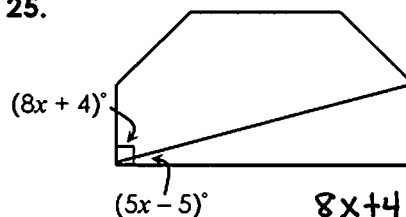
$$5x - 22 = 3x + 2$$

$$2x - 22 = 2$$

$$2x = 24$$

$$x = 12$$

25.



$$8x + 4 + 5x - 5 = 90$$

$$13x - 1 = 90$$

$$13x = 91$$

$$x = 7$$

Name: _____

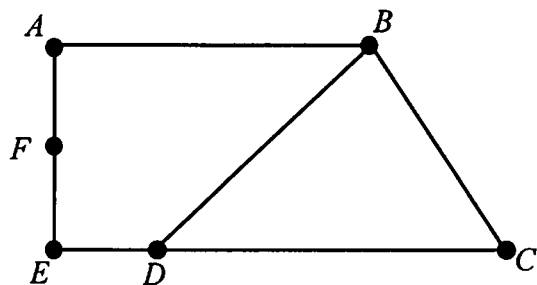
Math 7

Date: _____ Per: _____

Unit 6: Geometry

Quiz 6-1: Angles & Angle Relationships

Use the diagram below and a protractor, measure each angle below and classify it as acute, obtuse, right, or straight.



1. $m\angle EDB = 135^\circ$; Classify: obtuse

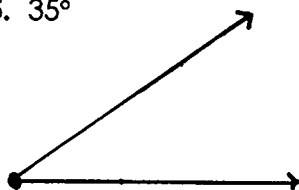
2. $m\angle FED = 90^\circ$; Classify: right

3. $m\angle BCD = 60^\circ$; Classify: acute

4. $m\angle AFE = 180^\circ$; Classify: straight

Using a protractor, construct each angle with the given measure.

5. 35°

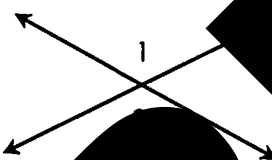


8°

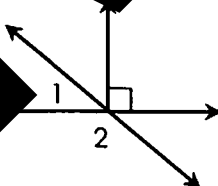


Classify each angle pair using all names that apply.

7.

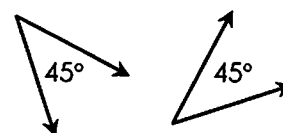


- ☐ Adjacent Angles
- ☒ Vertical Angles
- ☐ Complementary Angles
- ☐ Supplementary Angles
- ☒ Congruent Angles



- ☒ Adjacent Angles
- ☐ Vertical Angles
- ☐ Complementary Angles
- ☒ Supplementary Angles
- ☐ Congruent Angles

9.



- ☐ Adjacent Angles
- ☐ Vertical Angles
- ☒ Complementary Angles
- ☐ Supplementary Angles
- ☒ Congruent Angles

Decide whether the statement is always, sometimes, or never true.

10. If two angles are congruent, then they are vertical angles.

11. Two right angles are complementary angles.

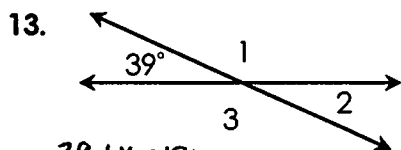
12. If an angle is acute, then its supplement angle is obtuse.

10. Sometimes

11. Never

12. Always

Find each measure. (Diagrams are not drawn to scale)



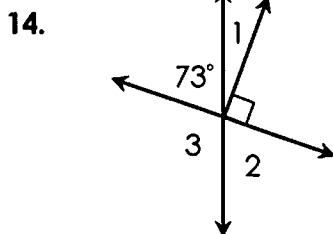
$$39 + x = 180$$

$$x = 141$$

$$m\angle 1 = 141^\circ$$

$$m\angle 2 = 39^\circ$$

$$m\angle 3 = 141^\circ$$



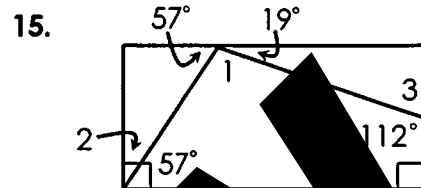
$$73 + x = 90$$

$$x = 17$$

$$m\angle 1 = 17^\circ$$

$$m\angle 2 = 73^\circ$$

$$m\angle 3 = 107^\circ$$



$$19 + x = 180$$

$$76 + 180$$

$$x = 104$$

$$m\angle 1 = 104^\circ$$

$$m\angle 2 = 57^\circ$$

$$m\angle 3 = 112^\circ$$

16. If $\angle D$ and $\angle E$ are supplementary angles and $m\angle D = 29^\circ$, find $m\angle E$.

$$x + 29 = 180$$

$$x = 151$$

$$16. 151^\circ$$

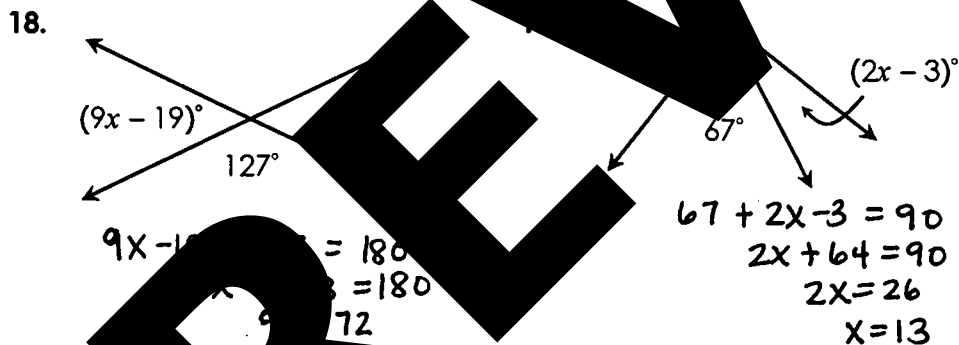
17. If $\angle 1$ and $\angle 2$ are vertical angles, $\angle 2$ and $\angle 3$ are supplementary angles, and $m\angle 1 = 71^\circ$, find $m\angle 3$.

$$71 + x = 180$$

$$x = 109$$

$$17. 109^\circ$$

Solve for x . (Diagrams are not drawn to scale)



$$9x - 19 = 127$$

$$9x = 146$$

$$x = 16.22$$

$$67 + 2x - 3 = 90$$

$$2x + 64 = 90$$

$$2x = 26$$

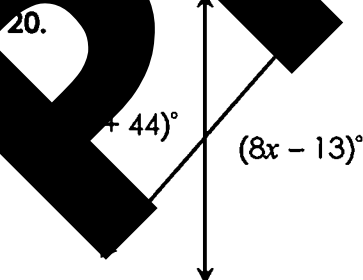
$$x = 13$$

$$18. x = 8$$

$$19. x = 13$$

$$20. x = 19$$

$$21. x = 5$$

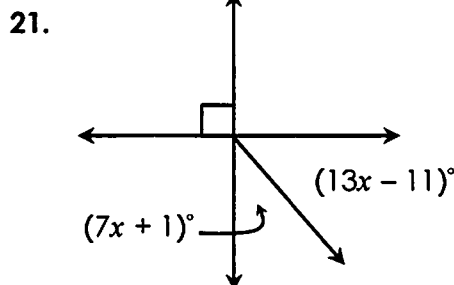


$$x + 44 = 8x - 13$$

$$44 = 7x - 13$$

$$57 = 7x$$

$$x = 8.14$$



$$13x - 11 + 7x + 1 = 90$$

$$20x - 10 = 90$$

$$20x = 100$$

$$x = 5$$

Name:

Date:

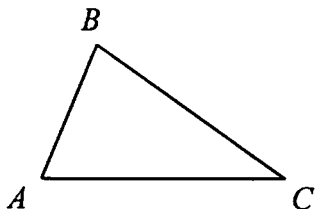
Topic:

Class:

Main Ideas/Questions

Notes/Examples

Triangles



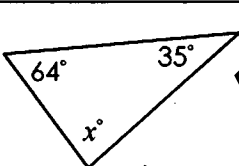
- A **triangle** is a polygon with 3 sides and 3 angles.
- On the triangle to the left, the **sides** are $\overline{AB}$, $\overline{BC}$, and $\overline{AC}$; the **angles** are $\angle A$, $\angle B$, and $\angle C$.
- The angle sum theorem states that the sum of the measures of the three angles is always 180° .

Therefore, $m\angle A + m\angle B + m\angle C = 180^\circ$

Examples

Directions: Find each missing measure.

1.

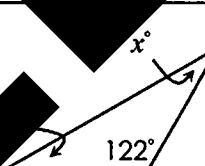


$$64 + 35 + x = 180$$

$$99 + x = 180$$

$$x = 81$$

2.

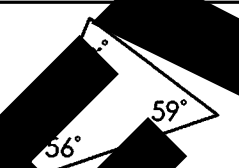


$$x + 34 + 122 = 180$$

$$x + 156 = 180$$

$$x = 24$$

3.

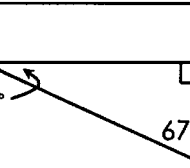


$$56 + 59 + x = 180$$

$$115 + x = 180$$

$$x = 65$$

4.



$$x + 67 + 90 = 180$$

$$x + 157 = 180$$

$$x = 23$$

5.



$$15 + 19 + x = 180$$

$$34 + x = 180$$

$$x = 146$$

6.

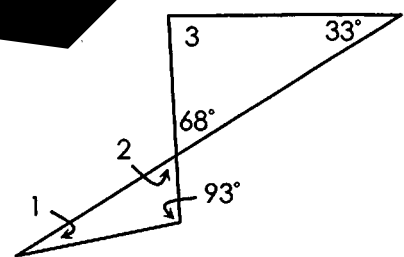


$$63 + x + 41 = 180$$

$$x + 104 = 180$$

$$x = 76$$

7.



$$x + 68 + 33 = 180$$

$$x + 101 = 180$$

$$x = 79$$

$$68 + 93 + y = 180$$

$$161 + y = 180$$

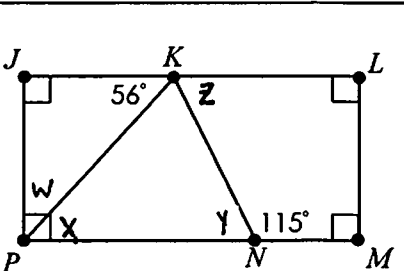
$$y = 19$$

$$m\angle 1 = 19^\circ$$

$$m\angle 2 = 68^\circ$$

$$m\angle 3 = 79^\circ$$

8.



$$56 + 90 + w = 180$$

$$146 + w = 180$$

$$w = 34$$

$$34 + x = 90$$

$$x = 56$$

$$y + 115 = 180$$

$$y = 65$$

$$56 + 59 + z = 180$$

$$z = 65$$

$$m\angle JPK = 34^\circ$$

$$m\angle KPN = 56^\circ$$

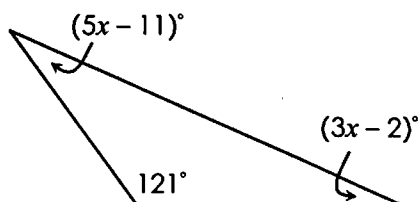
$$m\angle PNK = 65^\circ$$

$$m\angle NKL = 65^\circ$$

Using Algebra

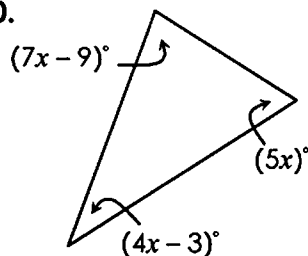
Directions: Find the value of x .

9.



$$\begin{aligned} 5x - 11 + 3x - 2 + 121 &= 180 \\ 8x + 108 &= 180 \\ 8x &= 72 \\ x &= 9 \end{aligned}$$

10.

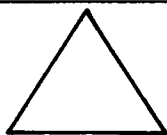


$$\begin{aligned} 7x - 9 + 5x + 4x - 3 &= 180 \\ 16x - 12 &= 180 \\ 16x &= 192 \\ x &= 12 \end{aligned}$$

Types of Triangles

CLASSIFYING BY ANGLES

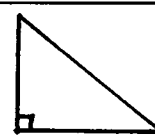
All Acute Angles



One Obtuse Angle



One Right Angle



Acute

Obtuse

Right

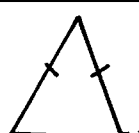
CLASSIFYING BY SIDES

No Congruent Sides



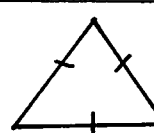
Scalene

Two Congruent Sides



Isosceles

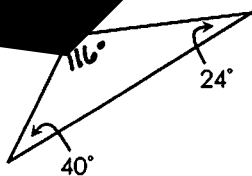
All Sides Congruent



Equilateral

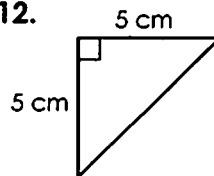
Directions: Classify each triangle by its angles and sides.

Example



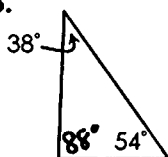
obtuse,
Scalene

12.



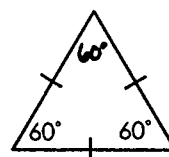
Right,
Isosceles

13.



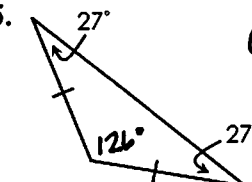
Acute,
Scalene

14.



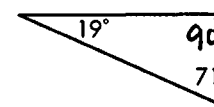
Acute,
Equilateral

15.



Obtuse,
Isosceles

16.



Right,
Scalene

Name: _____

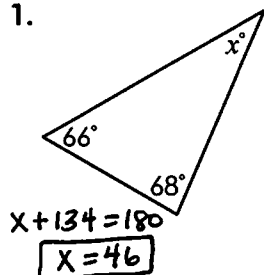
Unit 6: Geometry

Date: _____ Per: _____

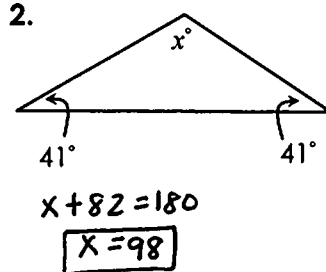
Homework 5: Triangles

Directions: Find each missing measure.

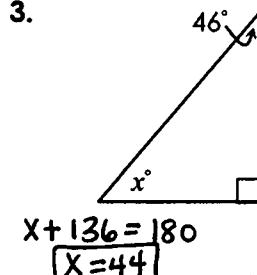
1.



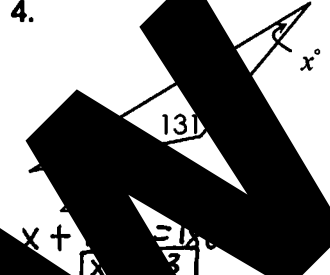
2.



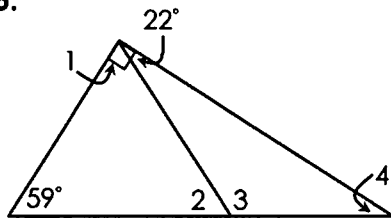
3.



4.

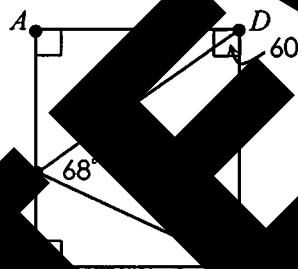


5.



$$\begin{aligned} m\angle 1 &= 68^\circ \\ m\angle 2 &= 53^\circ \\ m\angle 3 &= 127^\circ \\ m\angle 4 &= 31^\circ \end{aligned}$$

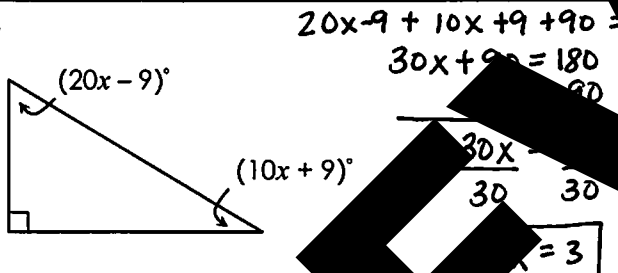
6.



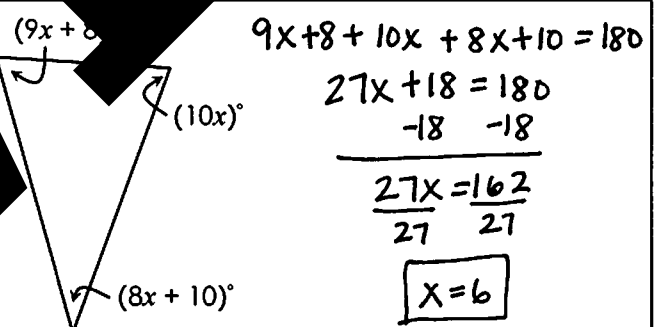
$$\begin{aligned} m\angle A &= 52^\circ \\ m\angle ADB &= 30^\circ \\ m\angle CBE &= 52^\circ \\ m\angle BEC &= 38^\circ \end{aligned}$$

Directions: Find the value of x.

7.

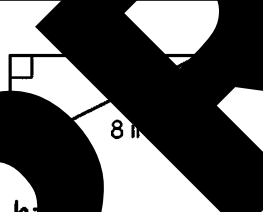


8.

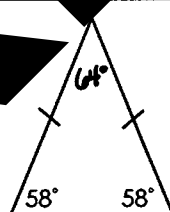


Directions: Classify each triangle by angles and sides.

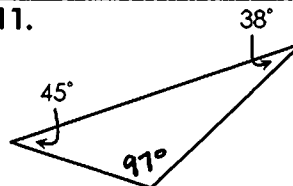
9.

Right
Isosceles

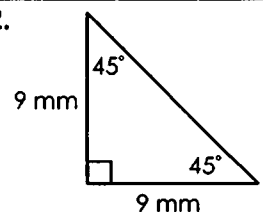
10.

Acute,
Isosceles

11.

Obtuse,
Scalene

12.

Right,
Isosceles

Directions: Determine whether the statement is always, sometimes, or never true.

13. If a triangle is acute, then it is an equilateral triangle.

Sometimes

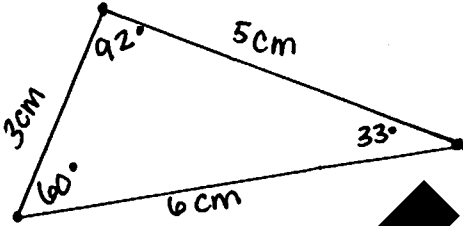
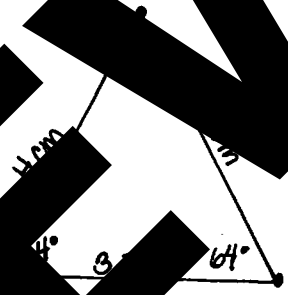
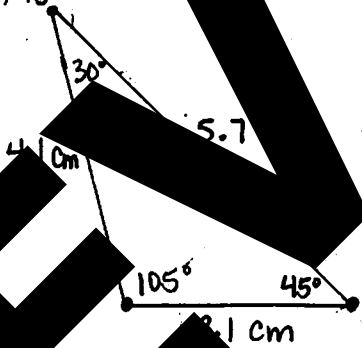
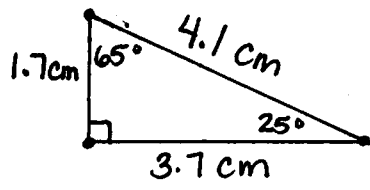
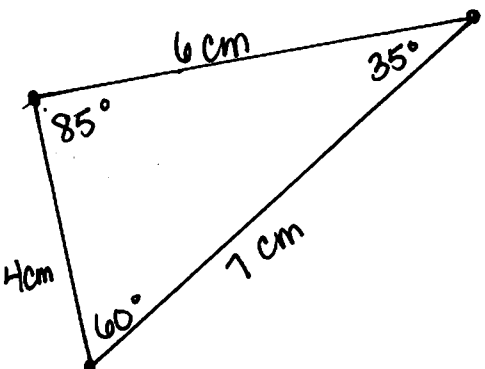
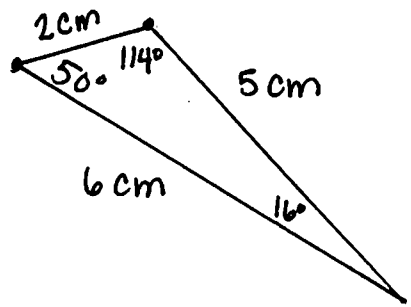
14. If a triangle has two acute angles it must be an acute triangle.

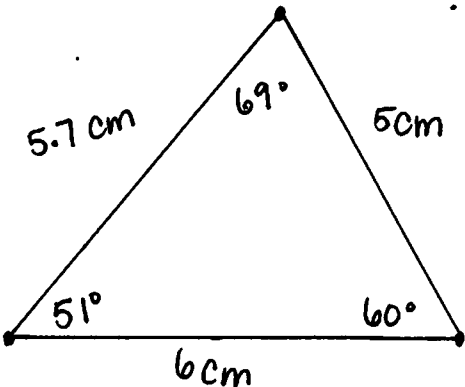
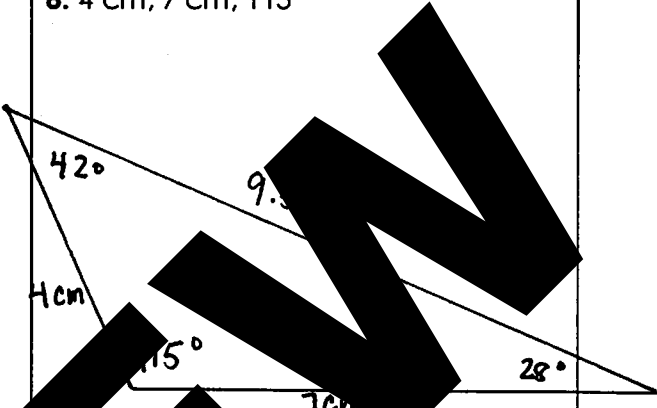
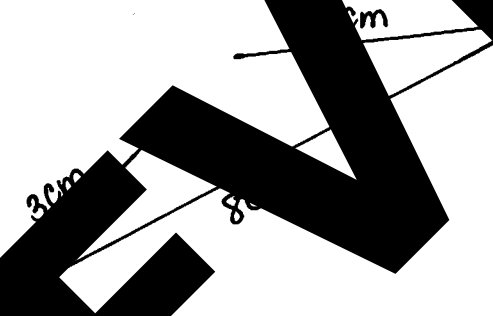
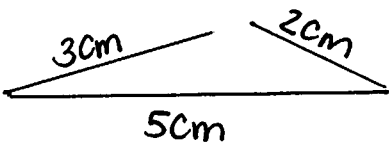
Sometimes

15. An obtuse triangle can have a right angle.

Never

Name:	Date:
Topic:	Class:

Main Ideas/Questions	Notes/Examples	
Constructing TRIANGLES	Directions: Construct a triangle with the two given side lengths. Label all side and angle measures.	
	1. 3 cm, 6 cm 	2. 4 cm, 4 cm 
	Directions: Using a protractor, construct a triangle with the two given angle measures. Label all side and angle measures.	
	3. 30°, 45° 	4. 90°, 25° 
Compare your triangles above to the ones drawn by your classmates. Are they the same?	No they are not. They have differing side lengths and angle measures.	
Unique Triangle (3 sides)	Unique triangle is a triangle that can only be drawn in one way. Construct a triangle with the given side lengths below. Label all side and angle measures.	
	5. 4 cm, 6 cm, 7 cm 	6. 2 cm, 5 cm, 6 cm 

Unique TRIANGLE {Given 2 sides and an included angle}	An included angle is the angle between two given sides. Construct a triangle with the given side lengths and their included angle. Label all side and angle measures. 7. 5 cm, 6 cm, 60°  8. 4 cm, 7 cm, 115° 						
Compare your triangles above to those drawn by your classmates. Are they the same?	Yes! They have the same side length and angle measures						
Impossible TRIANGLE	Directions: Construct a triangle with the three side lengths below. 9. 3 cm, 4 cm, 8 cm  10. 2 cm, 3 cm, 5 cm 						
What do you notice?	It is impossible to construct a triangle with the given side lengths.						
Triangle Inequality Theorem	The sum of the two smaller sides must be greater than the third side. Directions: Determine if the following side lengths could form a triangle. Prove your answer with an inequality. <table> <tr> <td data-bbox="464 1591 1004 1730"> 11. 7 cm, 8 cm, 12 cm $7 + 8 > 12$ $15 > 12$ Yes! </td><td data-bbox="1004 1591 1547 1730"> 12. 2 in, 2 in, 6 in $2 + 2 > 6$ $4 > 6$ No! </td></tr> <tr> <td data-bbox="464 1730 1004 1869"> 13. 14 ft, 18 ft, 35 ft $14 + 18 > 35$ $32 > 35$ No! </td><td data-bbox="1004 1730 1547 1869"> 14. 10 m, 12 m, 16 m $10 + 12 > 16$ $22 > 16$ Yes! </td></tr> <tr> <td data-bbox="464 1869 1004 2003"> 15. 5 yd, 11 yd, 16 yd $5 + 11 > 16$ $16 > 16$ No! </td><td data-bbox="1004 1869 1547 2003"> 16. 17 mm, 17 mm, 32 mm $17 + 17 > 32$ $34 > 32$ Yes! </td></tr> </table>	11. 7 cm, 8 cm, 12 cm $7 + 8 > 12$ $15 > 12$ Yes!	12. 2 in, 2 in, 6 in $2 + 2 > 6$ $4 > 6$ No!	13. 14 ft, 18 ft, 35 ft $14 + 18 > 35$ $32 > 35$ No!	14. 10 m, 12 m, 16 m $10 + 12 > 16$ $22 > 16$ Yes!	15. 5 yd, 11 yd, 16 yd $5 + 11 > 16$ $16 > 16$ No!	16. 17 mm, 17 mm, 32 mm $17 + 17 > 32$ $34 > 32$ Yes!
11. 7 cm, 8 cm, 12 cm $7 + 8 > 12$ $15 > 12$ Yes!	12. 2 in, 2 in, 6 in $2 + 2 > 6$ $4 > 6$ No!						
13. 14 ft, 18 ft, 35 ft $14 + 18 > 35$ $32 > 35$ No!	14. 10 m, 12 m, 16 m $10 + 12 > 16$ $22 > 16$ Yes!						
15. 5 yd, 11 yd, 16 yd $5 + 11 > 16$ $16 > 16$ No!	16. 17 mm, 17 mm, 32 mm $17 + 17 > 32$ $34 > 32$ Yes!						

Name: _____

Unit 6: Geometry

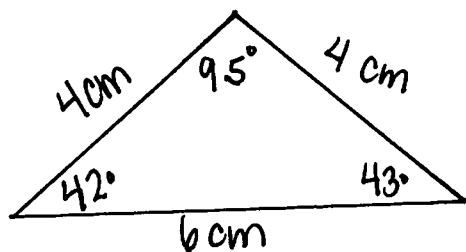
Date: _____ Per: _____

Homework 6: Constructing Triangles

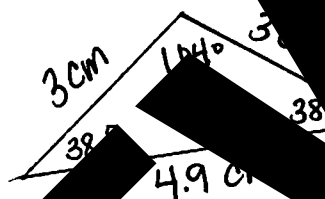
**** This is a 2-page document! ****

Directions: Construct a triangle with the given measures. Label all side and angle measures.

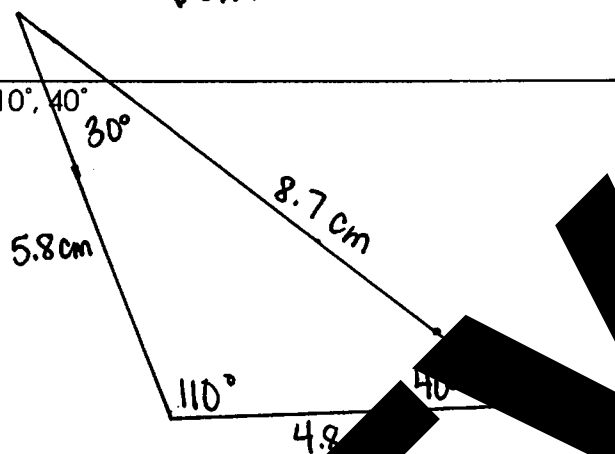
1. 4 cm, 6 cm



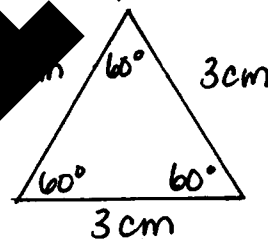
2. 3 cm, 3 cm



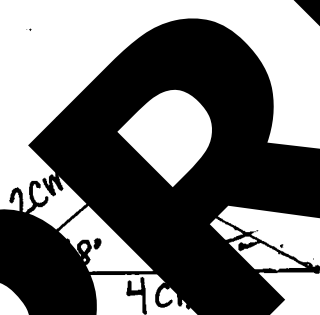
3. 110°, 40°



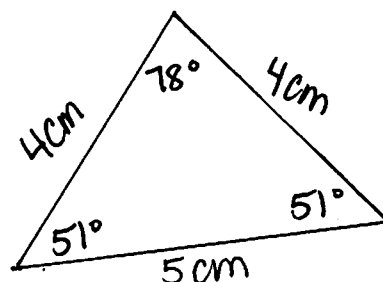
4. 60°



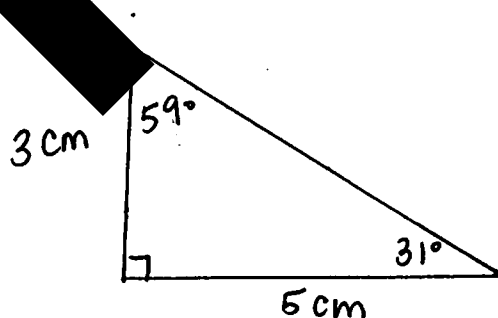
5. 2 cm, 3 cm, 4 cm



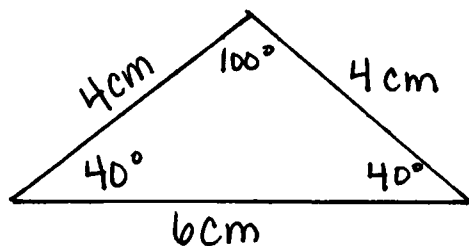
6. 4 cm, 4 cm, 5 cm



7. 3 cm, 5 cm, included angle: 90°



8. 6 cm, 4 cm, included angle: 40°



Directions: Determine if the following side lengths could form a triangle. Prove your answer with an inequality.

9. 10 ft, 12 ft, 25 ft

$$10 + 12 > 25$$

$$22 > 25$$

No!

10. 9 yd, 17 yd, 24 yd

$$9 + 17 > 24$$

$$26 > 24$$

11. 6 in, 7 in, 13 in

$$6 + 7 > 13$$

$$13 > 13$$

No!

12. 27 m, 35 m, 65 m

$$27 + 35 > 65$$

$$62 > 65$$

No!

13. 38 mm, 45 mm, 82 mm

$$38 + 45 > 82$$

$$83 > 82$$

Yes!

14. 23 cm, 25 cm, 25 cm

$$23 + 25 > 25$$

$$48 > 25$$

Yes!

15. 19 in, 26 in, 40 in

$$19 + 26 > 40$$

$$45 > 40$$

Yes!

16. 16 ft, 16 ft, 50 ft

$$16 + 16 > 50$$

$$32 > 50$$

No!

Directions: Determine whether you can construct one, or no triangle(s) with the given measures.

17. a triangle with angles measuring 45°, 45° and 45°

No triangles

18. a triangle with side measures 3 cm, 4 cm, and 7 cm

No triangles

19. a triangle with a right angle between two 6 cm sides

One triangle

20. a triangle with two 70° angles

Many triangles

21. a right triangle with an obtuse angle

No triangles

22. an isosceles triangle with two acute angles

Many triangles

23. a scalene triangle with two 35° angles

No triangles

24. a triangle with one acute, one obtuse and one right angle

No triangles

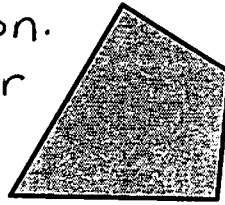
25. a triangle with sides measuring 30 ft, 30 ft, and 2 ft

One triangle

Classifying Quadrilaterals

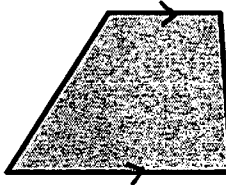
QUADRILATERAL

- 4-sided polygon.
- Sum of interior angles is 360° .



TRAPEZOID

- One pair of parallel sides.



ISOSCELES TRAPEZOID

- One pair of parallel sides.
- Non-parallel sides are congruent.



PARALLELOGRAM

- Opposite sides are parallel.
- Opposite sides are congruent.

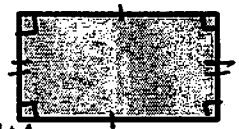


- Opposite sides are parallel.
- All sides are congruent.



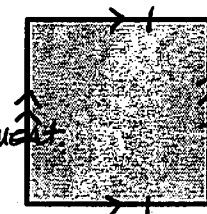
RECTANGLE

- Opposite sides are parallel and congruent.
- All angles are 90° .



SQUARE

- Opposite sides are parallel.
- All sides are congruent.
- All angles are 90° .



Name:

Date:

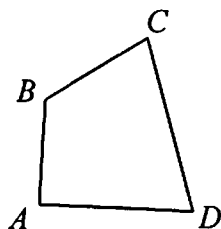
Topic:

Class:

Main Ideas/Questions

Notes/Examples

QUADRILATERALS



- A **quadrilateral** is a polygon with 4 sides and 4 angles.
- On the quadrilateral to the left, the **sides** are $\overline{AB}$, $\overline{BC}$, $\overline{CD}$, and $\overline{AD}$; the **angles** are $\angle A$, $\angle B$, $\angle C$, and $\angle D$.
- The sum of the measures of the four angles is always 360° .

Therefore, $m\angle A + m\angle B + m\angle C + m\angle D = 360^\circ$

ANGLE MEASURES

Directions: Find each missing measure.

1. 2.

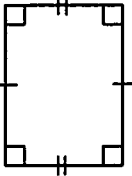
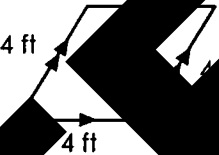
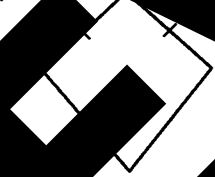
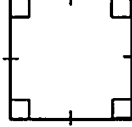
3.

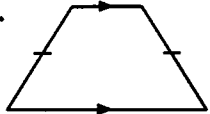
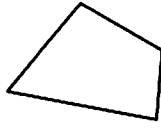
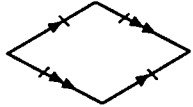
4.

5.

7. Find the value of x .

PROPERTIES of QUADRILATERALS	Place a checkmark on the properties that apply to each quadrilateral.				
	exactly one pair of opposite sides are parallel	both pairs of opposite sides are parallel	opposite sides are congruent	four congruent Sides	four right angles
Parallelogram		X	X		
Rhombus		X	X	X	
Rectangle		X	X		
Square		X	X	X	
Trapezoid	X				

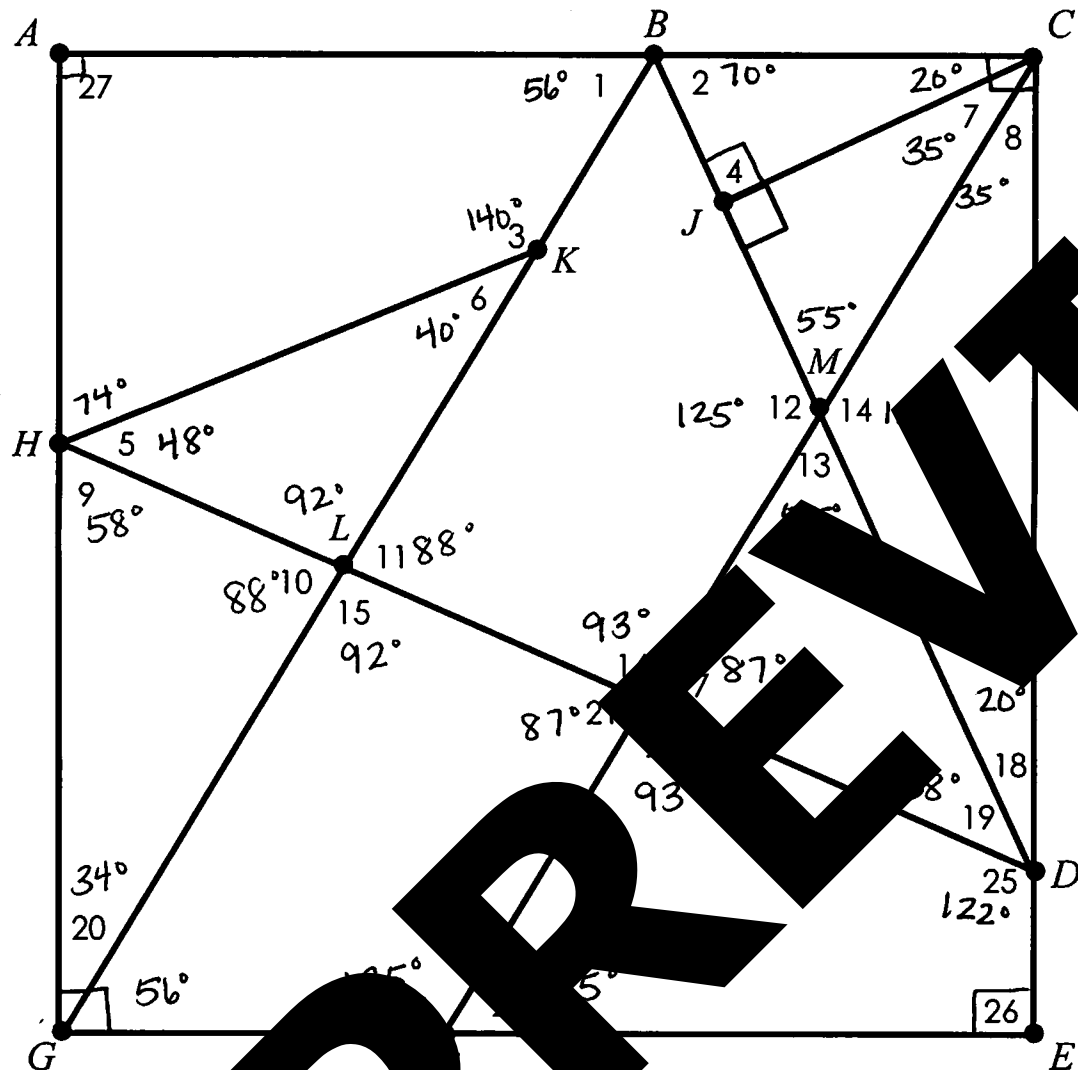
CLASSIFYING QUADRILATERALS	Classify each quadrilateral using all names that apply.		
	8.	9.	10.
 ☒ Quadrilateral ☐ Trapezoid ☐ Isosceles Trapezoid ☒ Parallelogram ☒ Rectangle ☐ Rhombus ☐ Square	 ☒ Quadrilateral ☐ Trapezoid ☐ Isosceles Trapezoid ☒ Parallelogram ☒ Rhombus ☐ Square	 ☒ Quadrilateral ☒ Trapezoid ☐ Isosceles Trapezoid ☐ Parallelogram ☐ Rectangle ☐ Rhombus ☐ Square	
11.	12.	13.	
 ☒ Quadrilateral ☐ Trapezoid ☐ Isosceles Trapezoid ☐ Parallelogram ☒ Rectangle ☐ Rhombus ☐ Square	 ☒ Quadrilateral ☐ Trapezoid ☐ Isosceles Trapezoid ☒ Parallelogram ☒ Rectangle ☒ Rhombus ☒ Square	 ☒ Quadrilateral ☐ Trapezoid ☐ Isosceles Trapezoid ☒ Parallelogram ☐ Rectangle ☐ Rhombus ☐ Square	

Classify each quadrilateral using the name that best describes it.		
14.	15.	16.
 Isosceles Trapezoid	 Quadrilateral	 Rhombus

Determine whether the statement is always, sometimes, or never true.	
17. A rectangle is a rhombus. Sometimes	18. A parallelogram is a square. Sometimes
19. A trapezoid is a quadrilateral. Always	20. A square is a rectangle. Always

The Great Angle CHALLENGE!

Name: _____



Find each angle measure!

- | | |
|---------------------------------|----------------------------|
| $m\angle 1 =$ <u> </u> | $m\angle 15 =$ <u>92°</u> |
| $m\angle 2 =$ <u>70°</u> | $m\angle 16 =$ <u>93°</u> |
| $m\angle 3 =$ <u>140°</u> | $m\angle 17 =$ <u>87°</u> |
| $m\angle 4 =$ <u> </u> | $m\angle 18 =$ <u>20°</u> |
| $m\angle 5 =$ <u>48°</u> | $m\angle 19 =$ <u>38°</u> |
| $m\angle 6 =$ <u>40°</u> | $m\angle 20 =$ <u>34°</u> |
| $m\angle 7 =$ <u>35°</u> | $m\angle 21 =$ <u>87°</u> |
| $m\angle 8 =$ <u>35°</u> | $m\angle 22 =$ <u>93°</u> |
| $m\angle 9 =$ <u>58°</u> | $m\angle 23 =$ <u>125°</u> |
| $m\angle 10 =$ <u>88°</u> | $m\angle 24 =$ <u>55°</u> |
| $m\angle 11 =$ <u>88°</u> | $m\angle 25 =$ <u>122°</u> |
| $m\angle 12 =$ <u>125°</u> | $m\angle 26 =$ <u>90°</u> |
| $m\angle 13 =$ <u>55°</u> | $m\angle 27 =$ <u>90°</u> |
| $m\angle 14 =$ <u>125°</u> | |

Given: $\angle ACE$ is a straight line, $m\angle BCJ = 20^\circ$, $m\angle KLH = 92^\circ$,
 $m\angle AHK = 74^\circ$, $m\angle KBJ = 54^\circ$, $m\angle BMC = 55^\circ$,
 $m\angle LGF = 34^\circ$

Name: _____

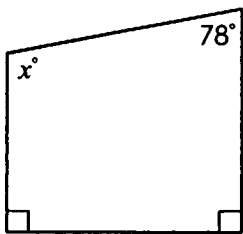
Unit 6: Geometry

Date: _____ Per: _____

Homework 7: Quadrilaterals

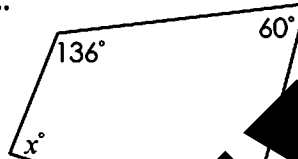
**** This is a 2-page document! ******Directions:** Find each missing measure.

1.



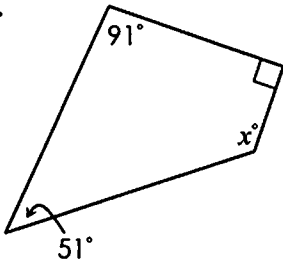
$$\begin{aligned}
 x + 78 + 90 + 90 &= 360 \\
 x + 258 &= 360 \\
 \boxed{x = 102}
 \end{aligned}$$

2.



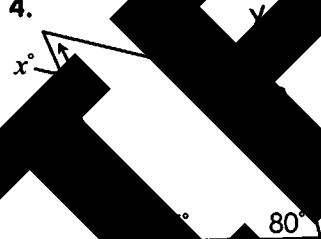
$$\begin{aligned}
 136 + 60 + x + 136 &= 360 \\
 332 + x &= 360 \\
 \boxed{x = 28}
 \end{aligned}$$

3.



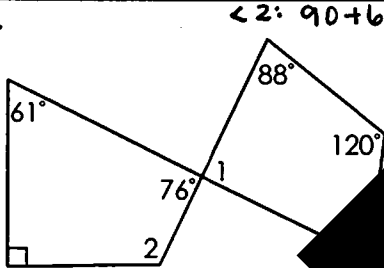
$$\begin{aligned}
 91 + 90 + 51 + x &= 360 \\
 232 + x &= 360 \\
 \boxed{x = 128}
 \end{aligned}$$

4.



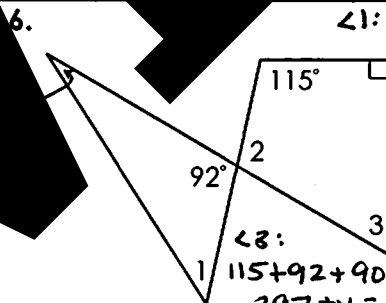
$$\begin{aligned}
 x + 80 + 115 + 55 &= 360 \\
 350 + x &= 360 \\
 \boxed{x = 10}
 \end{aligned}$$

5.



$$\begin{aligned}
 \angle 2: 90 + 61 + 90 + x &= 360 \\
 227 + x &= 360 \\
 \boxed{x = 133}
 \end{aligned}$$

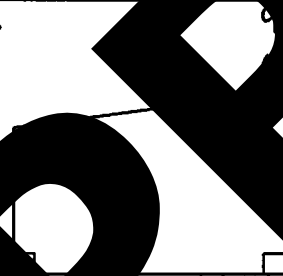
6.



$$\begin{aligned}
 \angle 1: 33 + 92 + x &= 180 \\
 125 + x &= 180 \\
 \boxed{x = 55}
 \end{aligned}$$

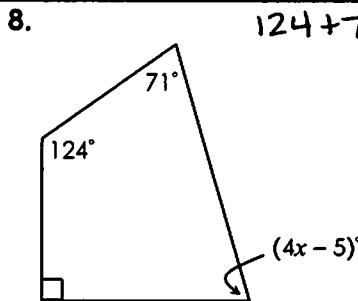
Directions: Find each missing measure of x.

7.



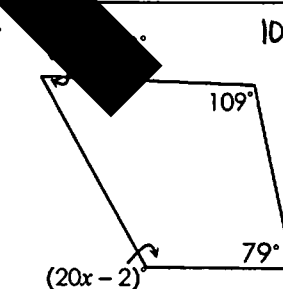
$$\begin{aligned}
 90 + 113 + x + 7 &= 360 \\
 210 + x &= 360 \\
 \boxed{x = 150}
 \end{aligned}$$

8.



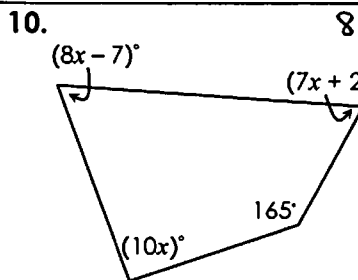
$$\begin{aligned}
 124 + 71 + 90 + 4x - 5 &= 180 \\
 4x + 280 &= 360 \\
 4x &= 80 \\
 \boxed{x = 20}
 \end{aligned}$$

9.



$$\begin{aligned}
 10x - 6 + 109 + 79 + 20x - 2 &= 360 \\
 30x + 180 &= 360 \\
 30x &= 180 \\
 \boxed{x = 6}
 \end{aligned}$$

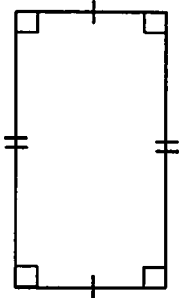
10.



$$\begin{aligned}
 8x - 7 + 7x + 2 + 165 + 10x &= 360 \\
 25x + 160 &= 360 \\
 25x &= 200 \\
 \boxed{x = 8}
 \end{aligned}$$

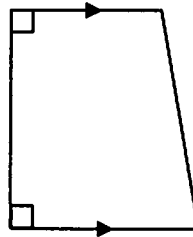
Directions: Classify each quadrilateral using all names that apply.

11.



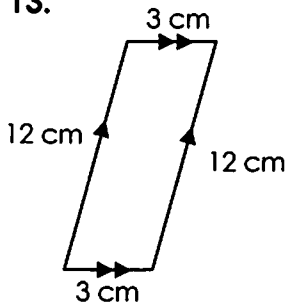
- ☒ Quadrilateral
- ☐ Trapezoid
- ☐ Isosceles Trapezoid
- ☒ Parallelogram
- ☒ Rectangle
- ☐ Rhombus
- ☐ Square

12.



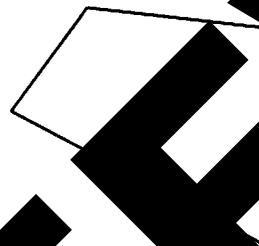
- ☒ Quadrilateral
- ☒ Trapezoid
- ☐ Isosceles Trapezoid
- ☐ Parallelogram
- ☐ Rectangle
- ☐ Rhombus
- ☐ Square

13.



- ☒ Quadrilateral
- ☐ Trapezoid
- ☐ Isosceles Trapezoid
- ☒ Parallelogram
- ☐ Rectangle
- ☐ Rhombus
- ☐ Square

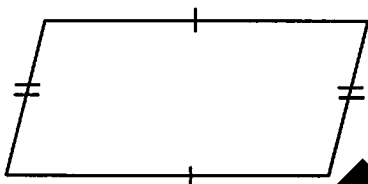
14.



- ☒ Quadrilateral
- ☐ Trapezoid
- ☐ Parallelogram
- ☐ Rectangle
- ☐ Rhombus
- ☐ Square

Directions: Classify each quadrilateral using the most specific name.

15.



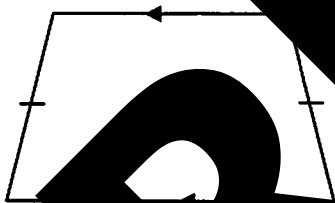
Parallelogram

16.



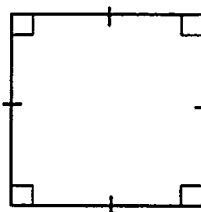
Trapezoid

17.



Isosceles Trapezoid

18.



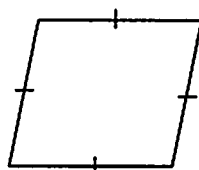
Square

19.



Quadrilateral

20.



Rhombus

Directions: Determine whether the statement is always, sometimes or never true.

21. A rectangle is a square.

Sometimes

22. A trapezoid is a parallelogram.

Never

23. A rhombus is a square.

Sometimes

Name: _____

Math 7

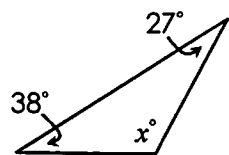
Date: _____ Per: _____

Unit 6: Geometry

Quiz 6-2: Triangles & Quadrilaterals

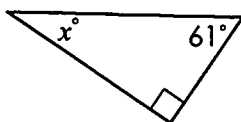
Find each measure.

1.



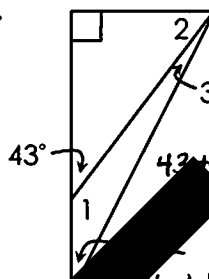
$$\begin{aligned} 38 + 27 + x &= 180 \\ 65 + x &= 180 \\ x &= 115 \end{aligned}$$

2.



$$\begin{aligned} x + 61 + 90 &= 180 \\ x + 151 &= 180 \\ x &= 29 \end{aligned}$$

3.

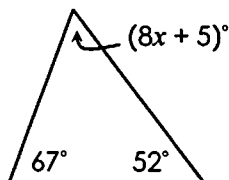


$$\begin{aligned} 43 + 90 + x &= 180 \\ x + 133 &= 180 \\ x &= 47 \end{aligned}$$

$$m\angle 3 = 17^\circ$$

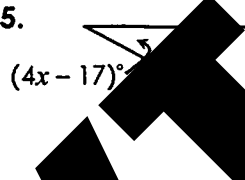
Solve for x.

4.



$$\begin{aligned} 8x + 5 + 67 + 52 &= 180 \\ 8x + 124 &= 180 \\ 8x &= 56 \\ x &= 7 \end{aligned}$$

5.



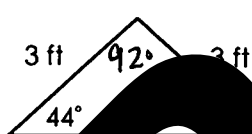
$$\begin{aligned} 4x - 17 + 7 + 5x &= 180 \\ 9x - 10 &= 180 \\ 9x &= 190 \\ x &= 21 \end{aligned}$$

$$4. x = 7$$

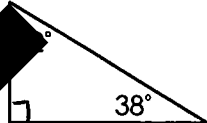
$$5. x = 12$$

Classify each triangle by angles and sides.

6.

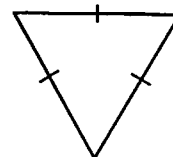


Obtuse
Isosceles



Right
Scalene

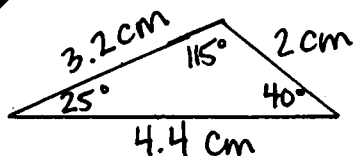
8.



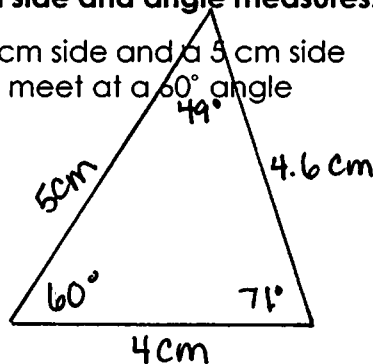
Acute
Equilateral

Construct a triangle with the given description. Label all side and angle measures.

Two angles of 25° and 40°



10. a 4 cm side and a 5 cm side that meet at a 60° angle



Determine whether you can construct many, one, or no triangle(s) with the given measurements.

11. a triangle with two obtuse angles
12. a triangle with side lengths measuring 6 ft, 10 ft, and 14 ft
13. a triangle with angle measures of 65° , 80° , and 35° .
14. a triangle with side lengths measuring 7 m, 12 m, and 19 m
15. an isosceles triangle with two 4 in. sides and a 120° angle between them

11. None

12. one

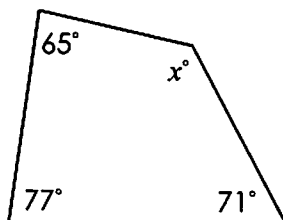
13. many

14. None

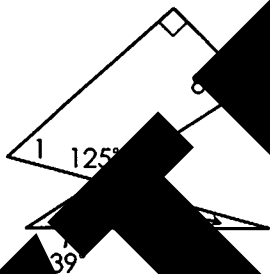
15. one

Find each measure.

16.



17.



16. 147°

17. $m\angle 1 = \underline{59^\circ}$

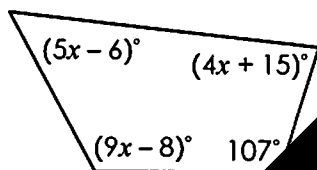
$m\angle 2 = \underline{125^\circ}$

$m\angle 3 = \underline{16^\circ}$

18. $x = \underline{14}$

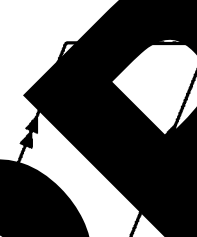
Solve for x .

18.



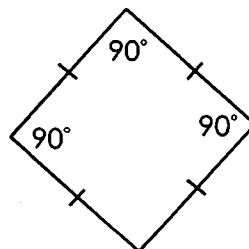
Classify each shape using the names that apply.

19.



- ☒ Quadrilateral
- ☐ Trapezoid
- ☐ Isosceles Trapezoid
- ☐ Parallelogram
- ☐ Rectangle
- ☐ Rhombus
- ☐ Square

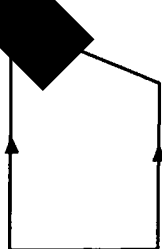
20.



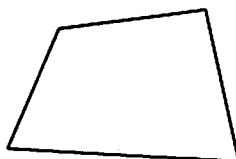
- ☒ Quadrilateral
- ☐ Trapezoid
- ☐ Isosceles Trapezoid
- ☒ Parallelogram
- ☒ Rectangle
- ☒ Rhombus
- ☒ Square

Classify each shape using the name that BEST describes it.

21.



22.



21. Trapezoid

22. Quadrilateral

Name:

Date:

Topic:

Class:

Main Ideas/Questions

Notes/Examples

POLYGON

A **polygon** is a closed figure formed by three or more line segments, called sides.

POLYGON

Classifying
POLYGONS

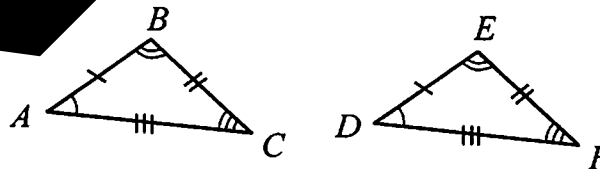
Polygons can be classified by the number of sides they have.
Complete the table below.

# of Sides	Polygon	# of Sides	Polygon Name
3	Triangle	7	Heptagon
4	Quadrilateral	8	Octagon
5	Pentagon	9	Nonagon
10	Decagon		

CONGRUENT
POLYGONS

Congruent polygons have the same angles and sides.
Corresponding parts (angles and sides) are congruent.

When polygons are congruent, we can write a **congruency statement**.



$$\triangle ABC \cong \triangle DEF$$

A **valid congruency statement** must match all corresponding angles and sides.

Directions: Identify the congruent parts given the congruency statement.

1. $\triangle CDE \cong \triangle FGH$

2. parallelogram $PQRS \cong$
parallelogram $WXYZ$

$\angle C \cong \angle F$

$\overline{CD} \cong \overline{FG}$

$\angle Q \cong \angle X$

$\overline{QR} \cong \overline{XY}$

$\angle D \cong \angle G$

$\overline{DE} \cong \overline{GH}$

$\angle Z \cong \angle S$

$\overline{YZ} \cong \overline{RS}$

$\angle E \cong \angle H$

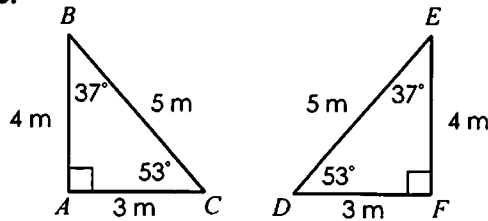
$\overline{CE} \cong \overline{FH}$

$\angle R \cong \angle Y$

$\overline{PS} \cong \overline{WZ}$

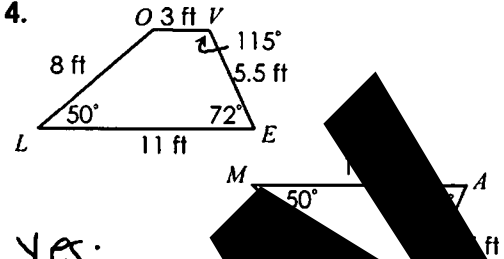
Directions: Determine if the polygons are congruent. If yes, write a congruency statement.

3.



Yes; $\triangle ABC \cong \triangle FED$

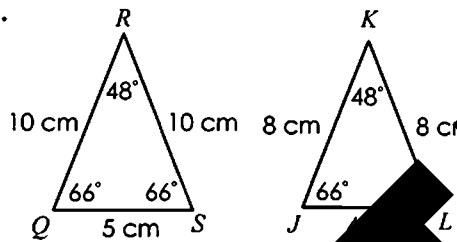
4.



Yes;

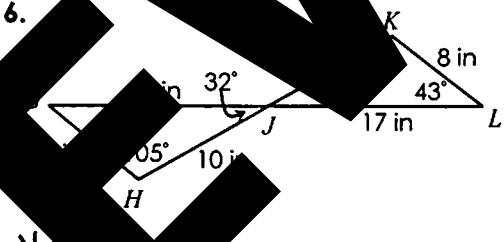
$\triangle OLEV \cong \triangle MATA$

5.



No

6.

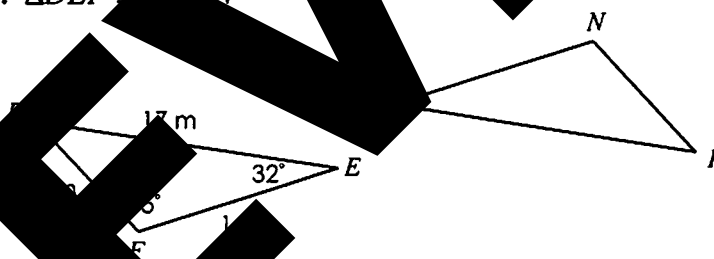


Yes;

$\triangle GHJ \cong \triangle KJL$

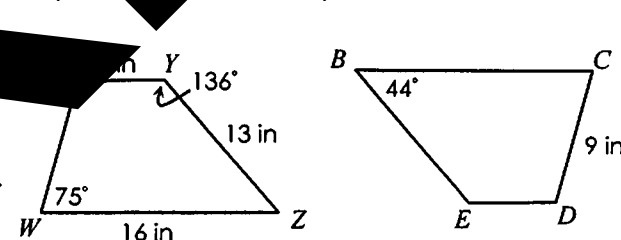
Directions: Find each measure. (Hint: use corresponding parts!)

7. $\triangle DEF \cong \triangle MNP$



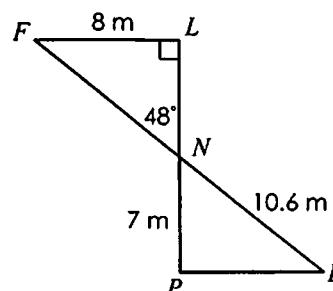
$m\angle P = 53^\circ$
 $m\angle M = 32^\circ$
 $m\angle N = 95^\circ$
 $PM = 17m$
 $PN = 9m$
 $MN = 14m$

8. trapezoid XYZ $\cong$ trapezoid CDEB



$m\angle C = 75^\circ$
 $m\angle Z = 44^\circ$
 $m\angle X = 105^\circ$
 $WX = 9in$
 $BC = 16in$
 $BE = 13in$

9. $\triangle FLN \cong \triangle BPN$



$m\angle F = 42^\circ$
 $m\angle P = 90^\circ$
 $m\angle B = 42^\circ$
 $FN = 10.6m$
 $NP = 7m$
 $PB = 8m$

FINDING
measures

Name: _____

Unit 6: Geometry

Date: _____ Per: _____

Homework 8: Congruent Polygons

Directions: Identify the congruent parts given the congruency statement.1. $\triangle JKL \cong \triangle XYZ$

$\angle L \cong \angle Z$

$\overline{KL} \cong \overline{YZ}$

$\angle Y \cong \angle K$

$\overline{XY} \cong \overline{JK}$

$\angle J \cong \angle X$

$\overline{ZX} \cong \overline{LJ}$

2. rectangle $DEFG \cong$ rectangle PQ

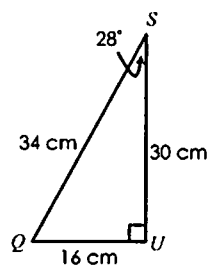
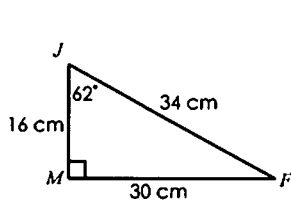
$\angle G \cong \angle S$

$\angle E \cong \angle Q$

$\angle P \cong \angle D$

Directions: Determine if the polygons are congruent. If yes, write a congruency statement.

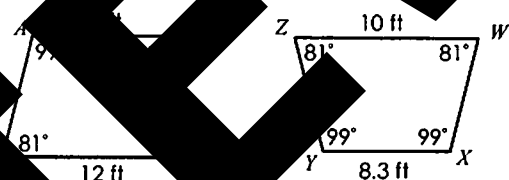
3.



Yes;

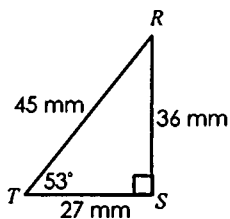
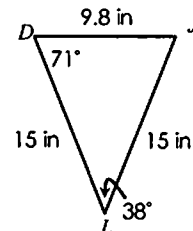
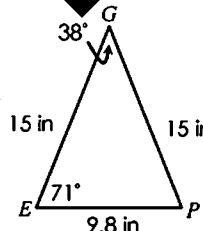
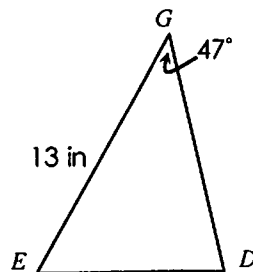
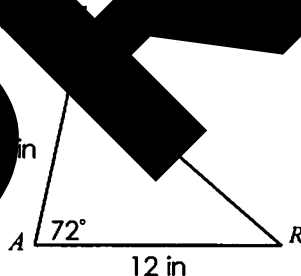
$\triangle FJM \cong \triangle USQ$

4.

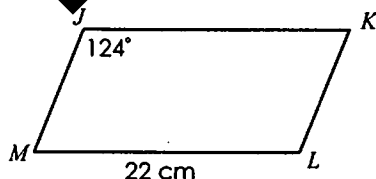


No!

5.

Yes; $\triangle RTS \cong \triangle ACB$ Yes; $\triangle GEP \cong \triangle LJD$ **Direction:** Find each measure. (Hint- match corresponding parts!)7. $\triangle ACR \cong$ 

$$\begin{aligned} m\angle R &= 47^\circ \\ m\angle C &= 61^\circ \\ m\angle E &= 61^\circ \\ ED &= 10 \text{ in} \\ CR &= 13 \text{ in} \\ DG &= 12 \text{ in} \end{aligned}$$

8. parallelogram $MJKL \cong$ parallelogram $WXYZ$ 

$$\begin{aligned} m\angle K &= 56^\circ \\ m\angle W &= 56^\circ \\ m\angle X &= 124^\circ \\ ZW &= 22 \text{ cm} \\ MJ &= 15 \text{ cm} \\ YX &= 22 \text{ cm} \end{aligned}$$

Name:

Date:

Topic:

Class:

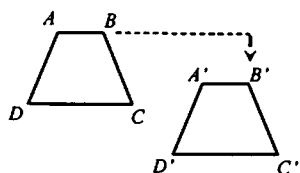
Main Ideas/Questions

Notes/Examples

TRANSFORMATION

A rule that causes a change to a figure.
The new figure is called an "image".

TRANSLATION

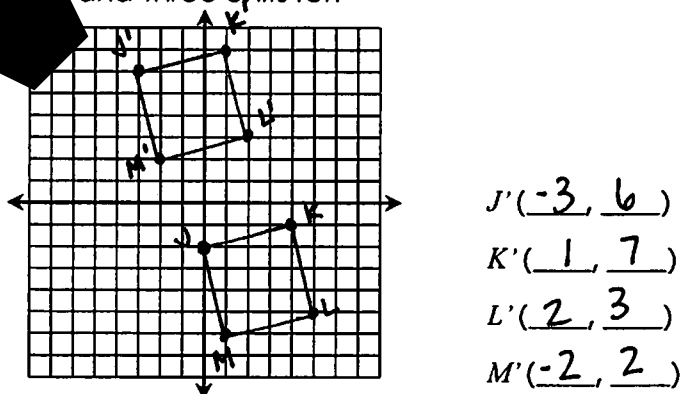
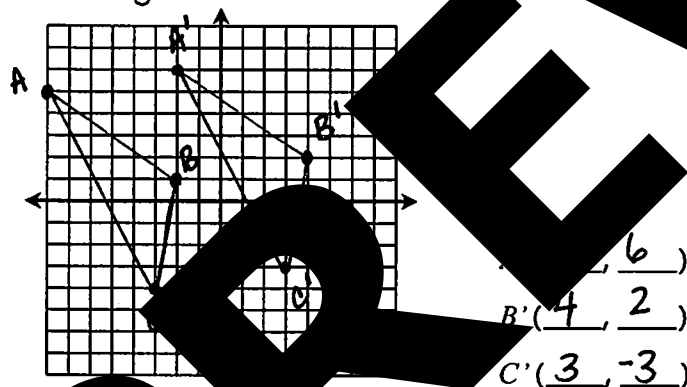


A' is read as "A prime".
The prime symbol is used
to name the image.

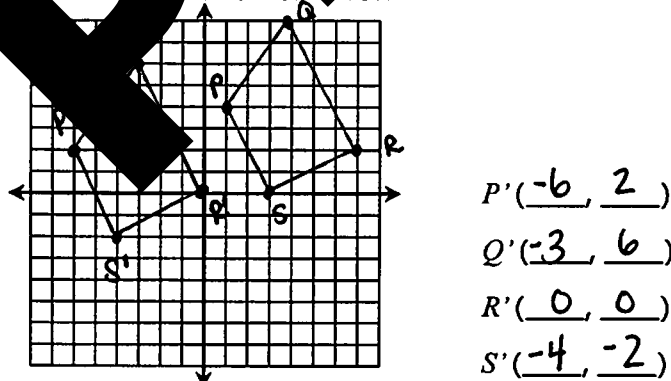
- A translation slides a figure horizontally and/or vertically.
- Every point of the figure moves the same distance and in the same direction.
- Translations result in congruent polygons meaning that the figures retain their size and shape.

Directions: Graph and label each figure and its image under the given translation. Give the coordinates of the image.

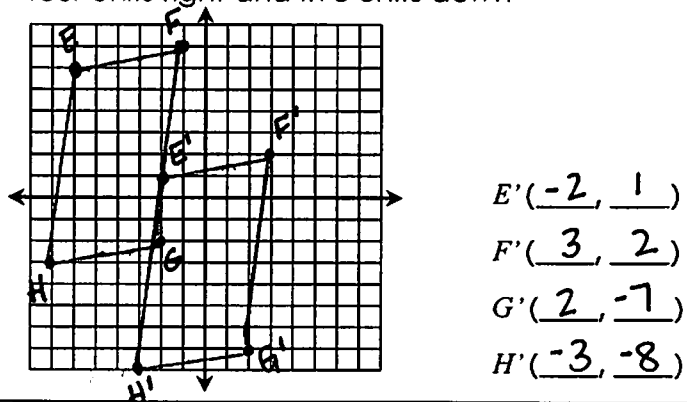
1. Triangle ABC with vertices $A(-8, 5)$, $B(-2, 1)$, and $C(-3, -4)$: translated one unit right
Square $JKLM$ with vertices $J(0, -2)$, $K(4, -1)$, $L(5, -5)$, and $M(1, -6)$: translated eight units right and three units left



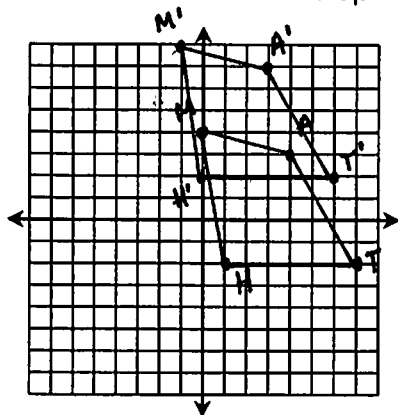
3. Triangle $PQRS$ with vertices $P(1, 4)$, $Q(4, 8)$, $R(7, 2)$, and $S(3, 0)$: translated two units down and seven units left



4. Parallelogram $EFGH$ with vertices $E(-6, 6)$, $F(-1, 7)$, $G(-2, -2)$, and $H(-7, -3)$: translated four units right and five units down

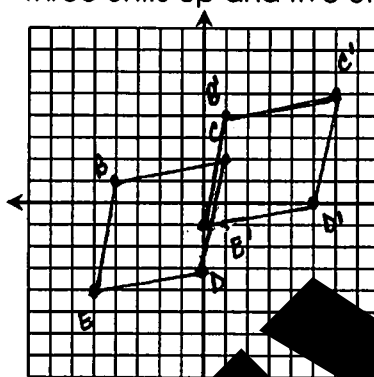


5. Quadrilateral $MATH$ with vertices $M(0, 4)$, $A(4, 3)$, $T(7, -2)$, and $H(1, -2)$: translated one unit left and four units up



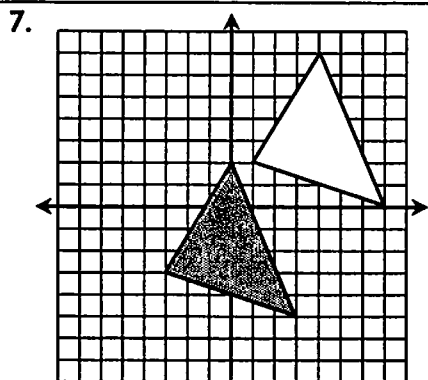
$M'(-1, 8)$
 $A'(-3, 7)$
 $T'(6, 2)$
 $H'(0, 2)$

6. Rhombus $BCDE$ with vertices $B(-4, 1)$, $C(1, 2)$, $D(0, -3)$, and $E(-5, -4)$: translated three units up and five units right

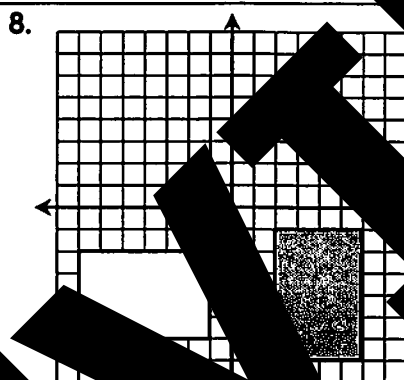


$B'(1, 4)$
 $C'(6, 5)$
 $D'(3, 0)$
 $E'(-2, -1)$

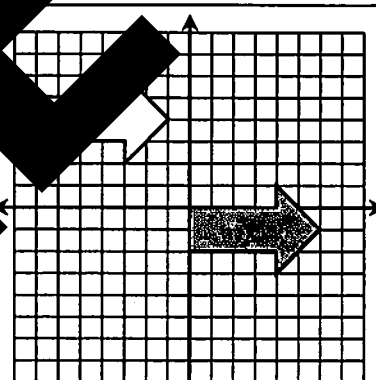
Directions: Determine if the shaded figure is a translation of the unshaded figure. If yes, describe the translation.



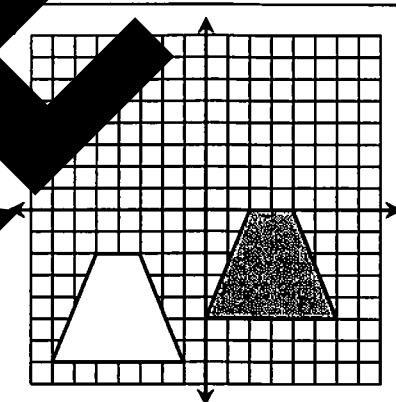
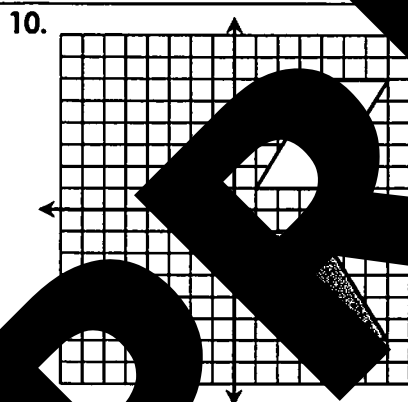
Yes; left 4 and down 5



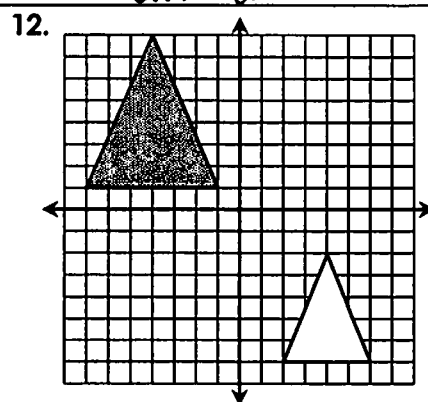
No



Yes; right 7 and down 5



Yes; right 7 and up 2



No

Directions: Describe the translation of the point to its image.

13. $A(3, -1) \rightarrow A'(7, 0)$

Right 4, up 1

14. $P(-5, 6) \rightarrow P'(-7, 1)$

Left 2, down 5

15. $K(-8, -4) \rightarrow K'(-1, -7)$

Right 7, down 3

Name: _____

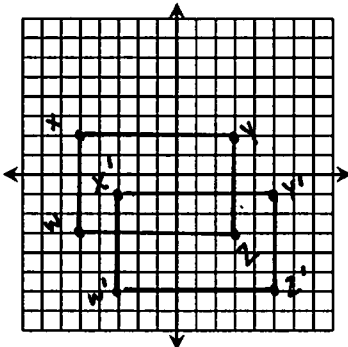
Unit 6: Geometry

Date: _____ Per: _____

Homework 9: Translations

Directions: Graph and label each figure and its image under the given translation. Give the coordinates of the image.

1. Rectangle $WXYZ$ with vertices $W(-5, -3)$, $X(-5, 2)$, $Y(3, 2)$, and $Z(3, -3)$: translated two units right and three units down



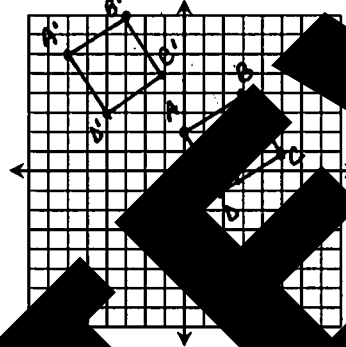
$$W'(-3, -6)$$

$$X'(-3, -1)$$

$$Y'(5, -1)$$

$$Z'(5, -6)$$

2. Square $ABCD$ with vertices $A(0, 2)$, $B(3, 2)$, $C(5, 1)$, and $D(2, -1)$: translated four units right and six units left



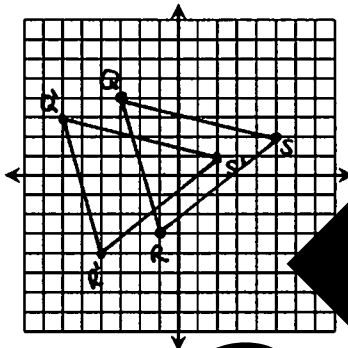
$$A'(-6, 6)$$

$$B'(-3, 6)$$

$$C'(1, 5)$$

$$D'(-4, 3)$$

3. Triangle QRS with vertices $Q(-3, 4)$, $R(-1, -3)$, and $S(5, 2)$: translated one unit down and three units left

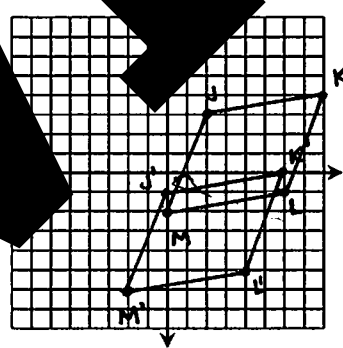


$$Q'(-6, 3)$$

$$R'(-4, -4)$$

$$S'(2, -1)$$

4. Polygon $JKLM$ with vertices $J(2, 3)$, $K(8, 3)$, $L(4, -1)$, and $M(0, -2)$: translated four units down and two units left



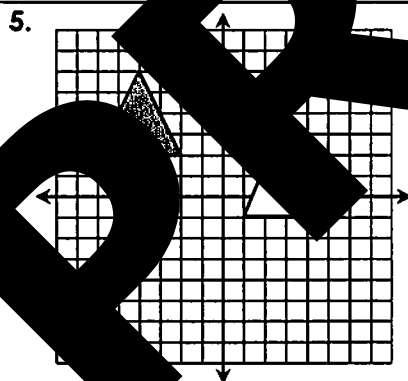
$$J'(-2, -1)$$

$$K'(6, -1)$$

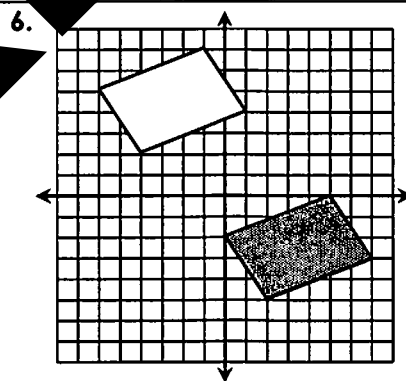
$$L'(2, -5)$$

$$M'(-2, -6)$$

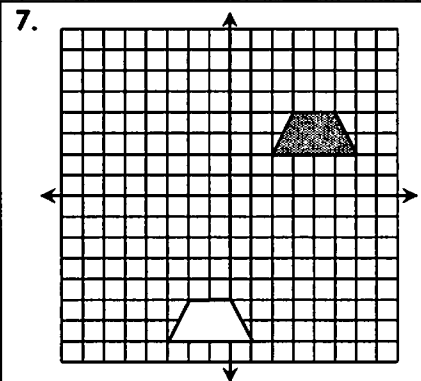
Directions: Determine if the shaded figure is a translation of the white figure. If yes, describe the translation.



No



Yes; Right 6, down 7



Yes; Right 5, up 9

Directions: Describe the translation of the point to its image.

8. $A(5, 3) \rightarrow A'(-4, -1)$

Left 9, down 4

9. $C(-2, 1) \rightarrow C'(5, 3)$

Right 7, up 2

10. $R(-4, -4) \rightarrow R'(-2, 0)$

Right 2, up 4

Name:

Date:

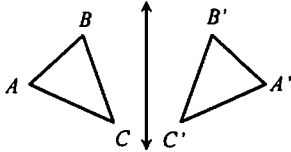
Topic:

Class:

Main Ideas/Questions

Notes/Examples

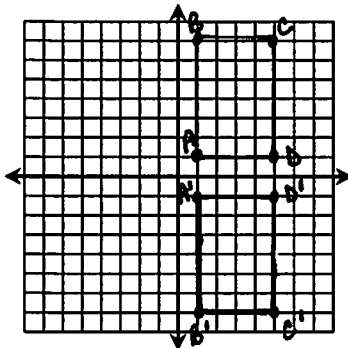
REFLECTION



- A flip over a line called the line of reflection.
- Each point and its image are the same distance from the line of reflection.
- The x-axis and y-axis are common lines of reflection.
- Reflections also result in congruent figures.

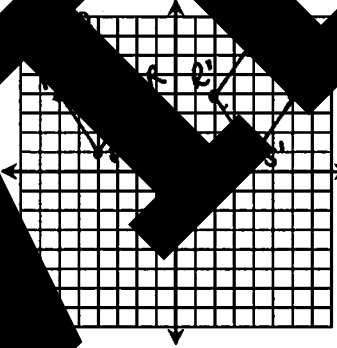
Directions: Graph and label each figure and its image under a reflection across the given line. Give the coordinates of the image.

1. Rectangle $ABCD$ with vertices $A(1, 1)$, $B(1, 7)$, $C(5, 7)$, and $D(5, 1)$: x-axis



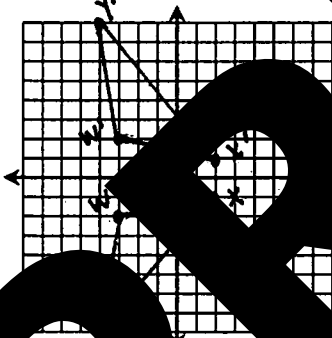
$A'(\underline{1}, \underline{-1})$
 $B'(\underline{1}, \underline{-7})$
 $C'(\underline{5}, \underline{-7})$
 $D'(\underline{5}, \underline{-1})$

2. Rhombus $PQRS$ with vertices $P(-6, 4)$, $Q(-4, 7)$, $R(2, 4)$, and $S(4, 1)$: y-axis



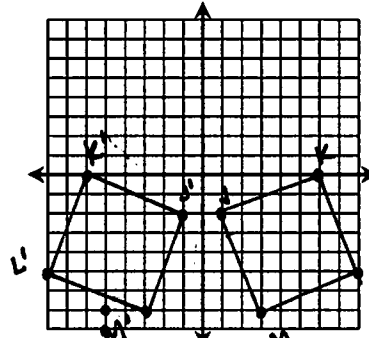
$P'(\underline{6}, \underline{4})$
 $Q'(\underline{4}, \underline{7})$
 $R'(\underline{2}, \underline{4})$
 $S'(\underline{4}, \underline{1})$

3. Triangle WXY with vertices $W(-3, 2)$, $X(2, 1)$, and $Y(-4, 8)$: x-axis



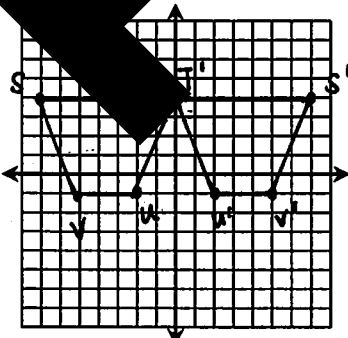
$W'(\underline{-3}, \underline{2})$
 $X'(\underline{2}, \underline{1})$
 $Y'(\underline{-4}, \underline{8})$

4. Square $JKLM$ with vertices $J(1, -2)$, $K(6, 0)$, $L(8, -5)$, and $M(3, -7)$: y-axis



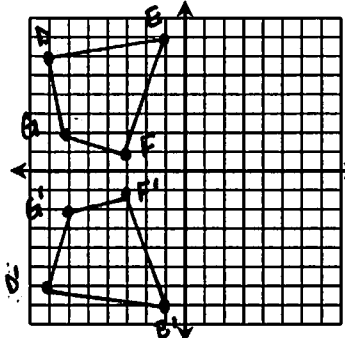
$J'(\underline{-1}, \underline{-2})$
 $K'(\underline{-6}, \underline{0})$
 $L'(\underline{-8}, \underline{-5})$
 $M'(\underline{-3}, \underline{-7})$

5. Trapezoid $TUVW$ with vertices $S(-7, 4)$, $T(0, 4)$, $U(2, -1)$, and $V(-5, -1)$: y-axis



$S'(\underline{7}, \underline{4})$
 $T'(\underline{0}, \underline{4})$
 $U'(\underline{2}, \underline{-1})$
 $V'(\underline{5}, \underline{-1})$

6. Quadrilateral $DEFG$ with vertices $D(-7, 6)$, $E(-1, 7)$, $F(-3, 1)$, and $G(-6, 2)$: x-axis

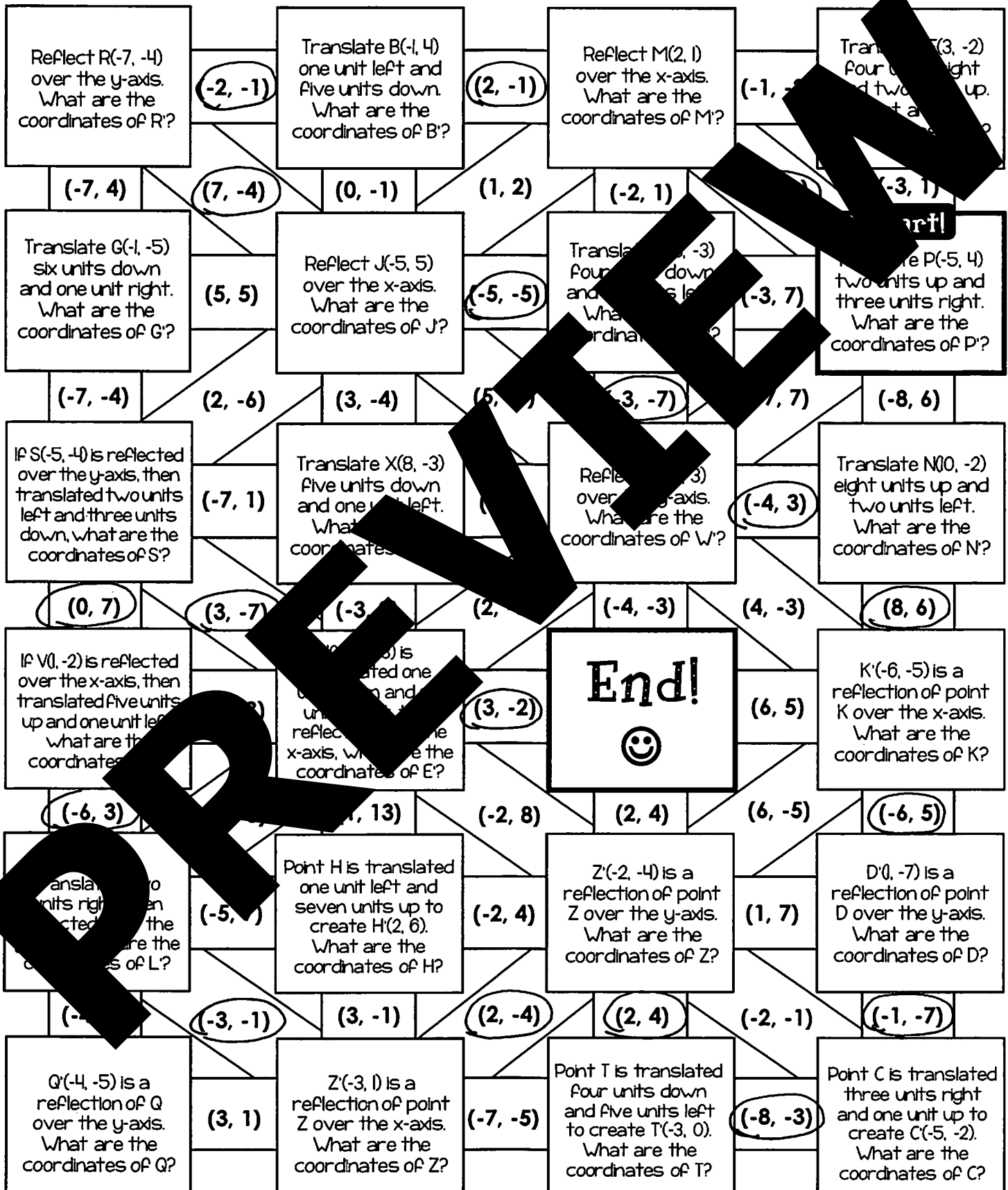


$D'(\underline{-7}, \underline{-6})$
 $E'(\underline{-1}, \underline{-7})$
 $F'(\underline{-3}, \underline{-1})$
 $G'(\underline{-6}, \underline{-2})$

NAME THE Line of Reflection	Directions: The coordinates of a point and its image are given. Name the line of reflection.	
	7. $S(3, -3) \rightarrow S'(-3, -3)$ <u>y-axis</u>	8. $N(-5, 2) \rightarrow N'(-5, -2)$ <u>x-axis</u>
	9. $P(-4, -6) \rightarrow P'(-4, 6)$ <u>x-axis</u>	10. $H(1, 7) \rightarrow G'(-1, 7)$ <u>y-axis</u>
COMPOSITE Transformations	More than one transformation	
	Ex: A reflection followed by a translation.	
Directions: Graph and label each figure and its image under the given transformations. Write the coordinates of the image.		
11. Triangle LMN with vertices $L(-7, 7)$, $M(-1, 1)$, and $N(-6, 2)$: (a) reflected in the x-axis (b) translated 5 units up and 4 units right		
12. Parallelogram $QRST$ with vertices $Q(2, -1)$, $R(4, 0)$, $S(3, -3)$, and $T(1, -2)$: (a) reflected in the y-axis (b) translated 2 units left and 3 units up		
13. Trapezoid $BCDE$ with vertices $B(-6, 5)$, $C(3, 6)$, $D(3, 2)$, and $E(-6, 2)$: (a) translated 7 units down (b) reflected in the x-axis		
14. Quadrilateral $WXYZ$ with vertices $W(-4, 4)$, $X(-1, 6)$, $Y(0, 2)$, and $Z(-5, 0)$: (a) translated 7 units down and 6 units right (b) reflected in the y-axis		

Translations & Reflections Maze!

Directions: Begin at the Start box. Read each problem carefully to find the coordinates. Use your solutions to navigate through the maze!



Name: _____

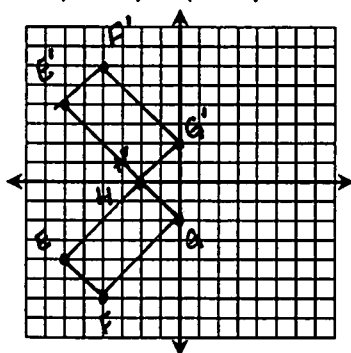
Unit 6: Geometry

Date: _____ Per: _____

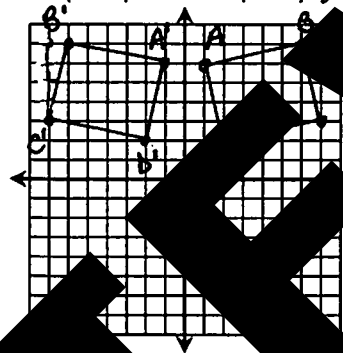
Homework 10: Reflections

**** This is a 2-page document! ******Directions:** Graph and label each figure and its image under a reflection in the given axis. Give the coordinates of the image.

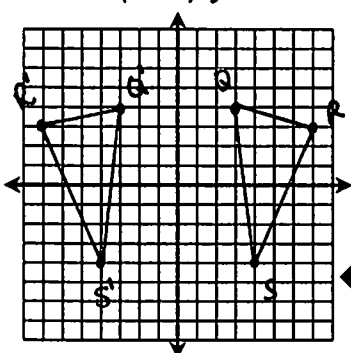
1. Rectangle
- $EFGH$
- with vertices
- $E(-6, -4)$
- ,
- $F(-4, -6)$
- ,
- $G(0, -2)$
- , and
- $H(-2, 0)$
- :
- x
- axis


 $E'(-6, 4)$
 $F'(-4, 6)$
 $G'(0, 2)$
 $H'(-2, 0)$

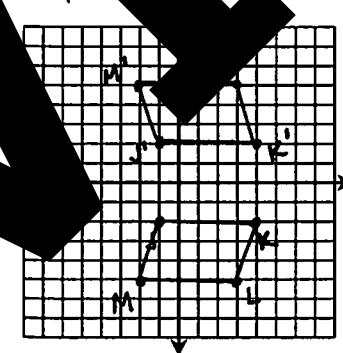
2. Square
- $ABCD$
- with vertices
- $A(6, 6)$
- ,
- $B(6, 1)$
- ,
- $C(7, 3)$
- , and
- $D(2, 2)$
- :
- y
- axis


 $A'(-6, 6)$
 $B'(-6, 1)$
 $C'(-7, 3)$
 $D'(-2, 2)$

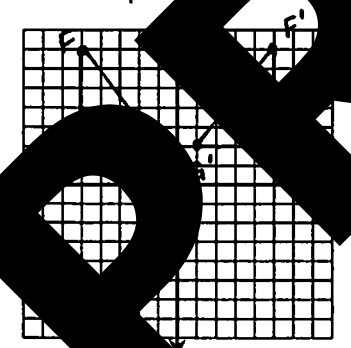
3. Triangle
- QRS
- with vertices
- $Q(3, 4)$
- ,
- $R(7, 3)$
- , and
- $S(4, -4)$
- :
- y
- axis


 $Q'(-3, 4)$
 $R'(-7, 3)$
 $S'(-4, -4)$

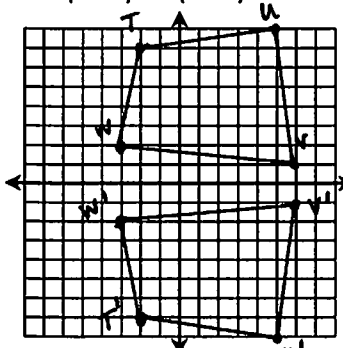
4. Parallelogram
- $JKLM$
- with vertices
- $J(-1, -2)$
- ,
- $K(4, -3)$
- ,
- $L(3, -5)$
- , and
- $M(-2, -5)$
- :
- x
- axis


 $J'(-1, 2)$
 $K'(4, 2)$
 $L'(3, 5)$
 $M'(-2, 5)$

5. Triangle
- EFG
- with vertices
- $E(-5, 2)$
- ,
- $F(-1, 7)$
- , and
- $G(-1, 2)$
- :
- x
- axis


 $E'(5, 2)$
 $F'(1, 7)$
 $G'(1, 2)$

6. Quadrilateral
- $TUVW$
- with vertices
- $T(-2, 7)$
- ,
- $U(5, 8)$
- ,
- $V(6, 1)$
- , and
- $W(-3, 2)$
- :
- x
- axis


 $T'(-2, -7)$
 $U'(5, -8)$
 $V'(6, -1)$
 $W'(-3, -2)$
Direction: The coordinates of a point and its image are given. Name the line of reflection.

- 7.
- $E(-4, -2) \rightarrow E'(-4, 2)$

 x -axis

- 8.
- $N(3, 7) \rightarrow N'(-3, 7)$

 y -axis

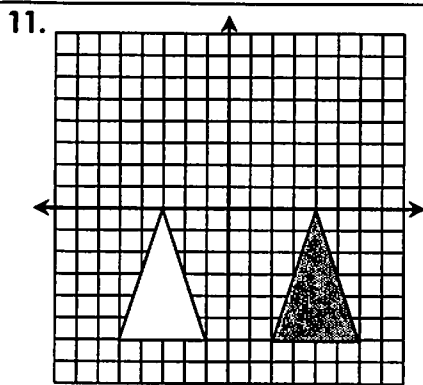
- 9.
- $P(6, -1) \rightarrow P'(-6, -1)$

 y -axis

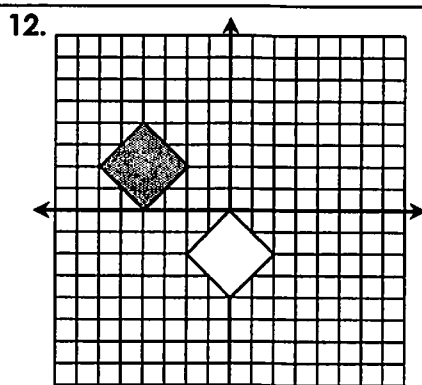
- 10.
- $K(-2, 5) \rightarrow K'(2, 5)$

 y -axis

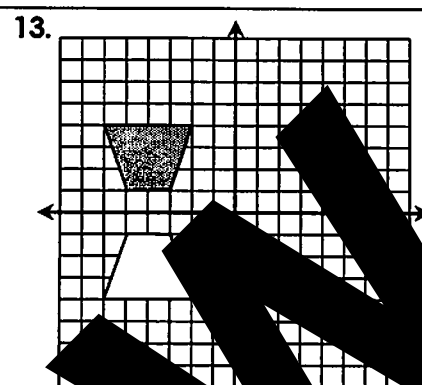
Directions: Determine if the shaded figure is a translation or reflection of the white figure. Describe the transformation.



Translation;
right 4



Translation;
left 1, up 1

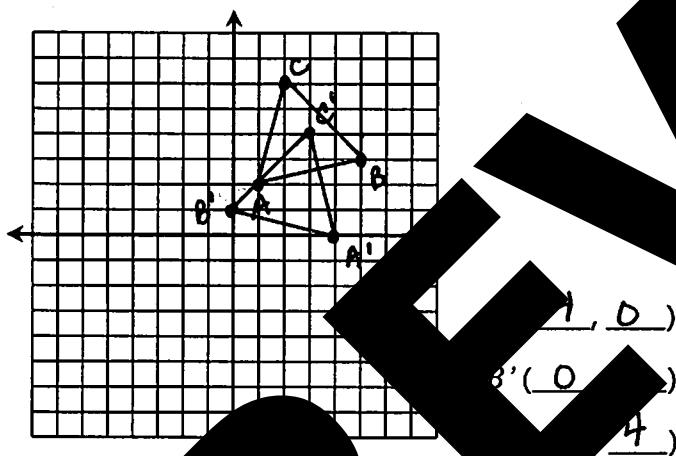


Reflection;
x-axis

Directions: Graph and label each figure and its image under the given transformation. Give the coordinates of the image.

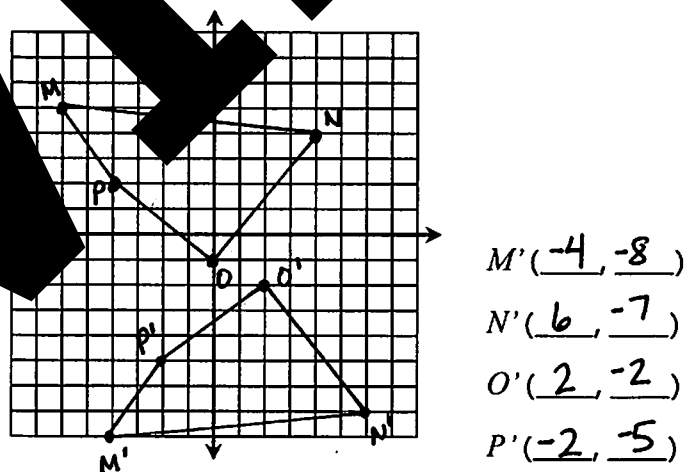
14. Triangle ABC with vertices $A(1, 2)$, $B(5, 3)$, and $C(2, 6)$:

- (a) reflected in the y -axis
(b) translated 5 units right and 2 units down



15. Quadrilateral $MNOP$ with vertices $M(-6, 5)$, $N(4, 1)$, $O(0, -2)$, and $P(-2, -4)$:

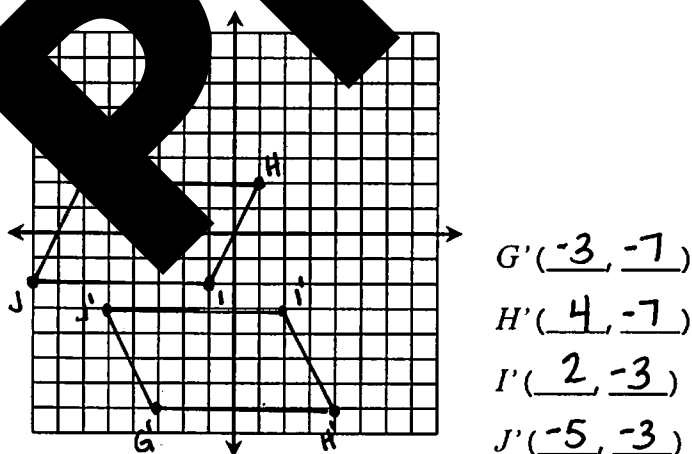
- (a) translated 2 units down and 2 units right
(b) reflected in the y -axis



$M'(-4, -3)$
 $N'(6, -1)$
 $O'(2, -4)$
 $P'(-4, -6)$

16. Parallelogram $GHIJ$ with vertices $G(-6, 2)$, $H(1, 2)$, $I(4, -1)$, and $J(-1, -1)$:

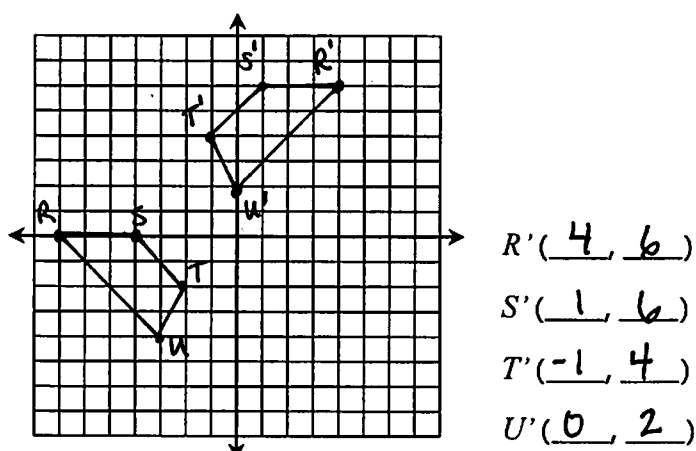
- (a) translated 3 units up and 3 units right
(b) reflected in the y -axis



$G'(-3, 5)$
 $H'(4, 5)$
 $I'(7, 2)$
 $J'(2, 2)$

17. Trapezoid $RSTU$ with vertices $R(-7, 0)$, $S(-4, 0)$, $T(-2, -2)$, and $U(-3, -4)$:

- (a) reflected in the y -axis
(b) translated 3 units left and 6 units up



$R'(-7, 0)$
 $S'(-4, 0)$
 $T'(-2, -2)$
 $U'(-3, -4)$

Name: _____

Math 7

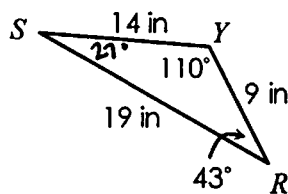
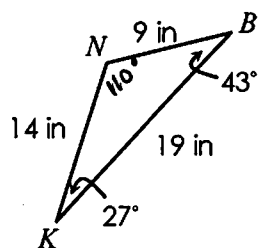
Date: _____ Per: _____

Unit 6: Geometry

Quiz 6-3: Congruent Polygons & Transformations

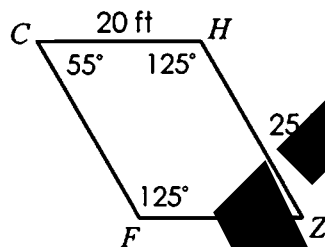
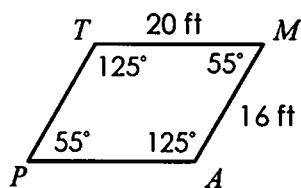
Determine if the polygons are congruent. If yes, write a congruency statement.

1.

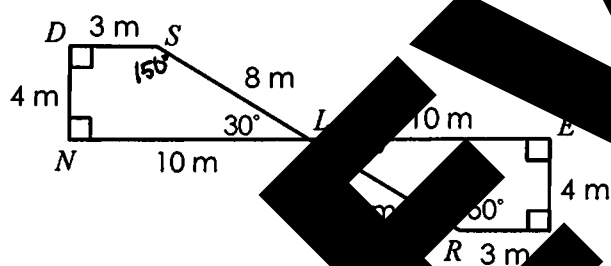


1. Yes; $\triangle KBN \cong \triangle SYR$
 2. Not Congruent
 3. Yes; $\triangle KBN \cong \triangle SYR$

2.



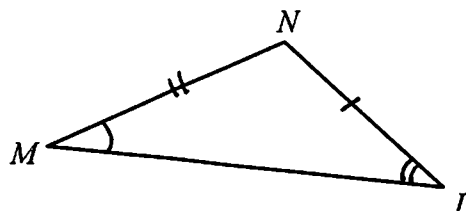
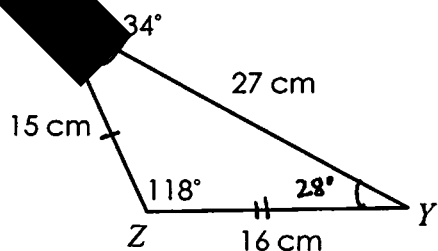
3.



4. If quadrilateral $KBN \cong$ quadrilateral SYR , identify the congruent parts.

4. $\angle P \cong \angle D$
 $\angle K \cong \angle Y$
 $\overline{TL} \cong \overline{HM}$
 $\overline{DK} \cong \overline{PY}$

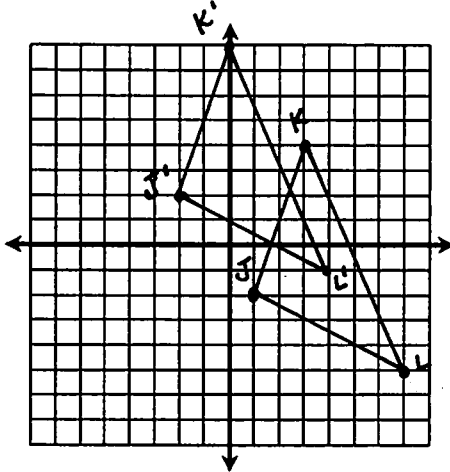
5. If $\triangle LMN \cong \triangle LMN$, find each measure.



5. $m\angle N = 118^\circ$
 $m\angle M = 28^\circ$
 $MN = 16 \text{ cm}$
 $NL = 15 \text{ cm}$

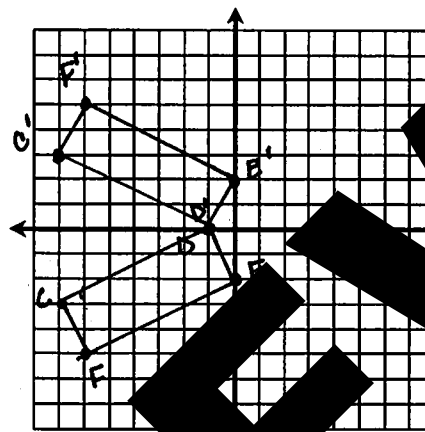
Graph each figure and its image under the given transformation(s). Give the new coordinates.

6. Triangle JKL with vertices $J(1, -2)$, $K(3, 4)$, and $L(7, -5)$; translated four units up and three units left



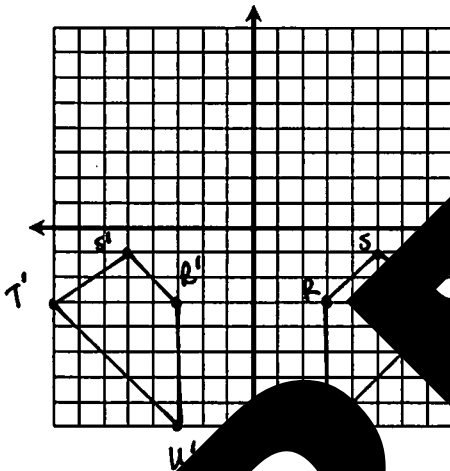
$J'(-2, 2)$
 $K'(0, 8)$
 $L'(4, -1)$

7. Rectangle $CDEF$ with vertices $C(-7, -3)$, $D(-1, 0)$, $E(0, -2)$, and $F(-6, -5)$; reflected in the x -axis



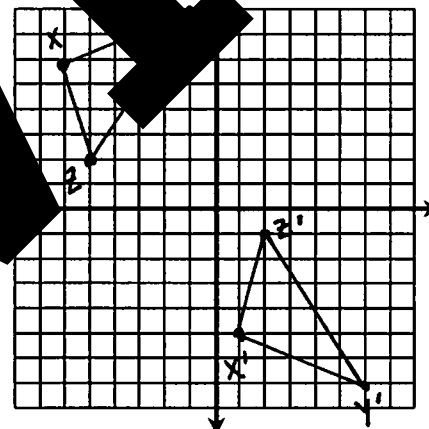
$C'(-7, 3)$
 $D'(-1, 0)$
 $E'(0, 2)$
 $F'(-6, 5)$

8. Trapezoid $RSTU$ with vertices $R(3, -3)$, $S(5, -1)$, $T(8, -3)$, and $U(3, -8)$; reflected in the y -axis



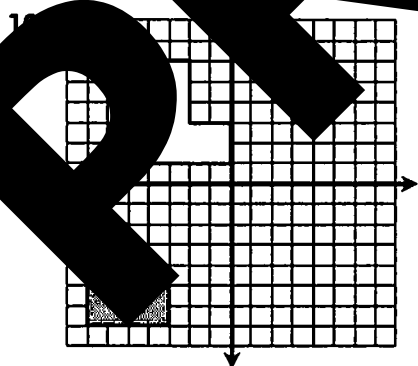
$R'(-3, -3)$
 $S'(-5, -1)$
 $T'(-8, -3)$
 $U'(-3, -8)$

9. Triangle XYZ with vertices $X(-6, 6)$, $Y(-1, 8)$, and $Z(-3, 4)$; translated 7 units right and one unit down, then reflected in the x -axis



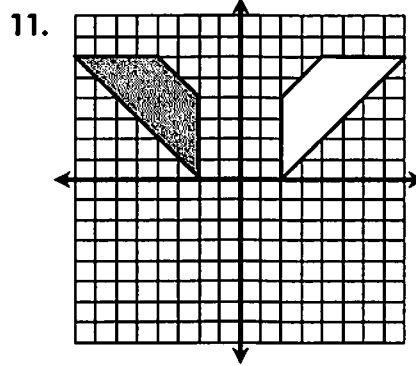
$X'(1, -5)$
 $Y'(6, -7)$
 $Z'(2, -1)$

Determine whether the transformation of the white figure to the shaded figure is a translation or a reflection. Write a rule for the transformation.



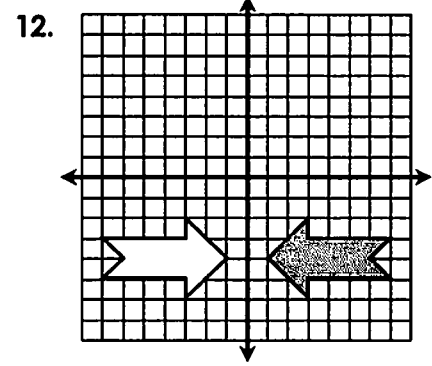
☒ Translation ☐ Reflection

Rule: left 3, up 8



☐ Translation ☒ Reflection

Rule: y -axis



☐ Translation ☒ Reflection

Rule: y -axis

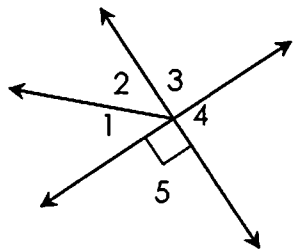
Unit 6 Test Study Guide (Geometry)

Name: _____

Date: _____ Per: _____

Topic 1: Angle Relationships

1. Using the diagram below, classify the angle pair as vertical, adjacent, complementary, supplementary, or congruent angles. Use all names that apply.



a) $\angle 3$ and $\angle 4$

Adjacent, congruent,
Supplementary

b) $\angle 1$ and $\angle 2$

Adjacent,
Complementary

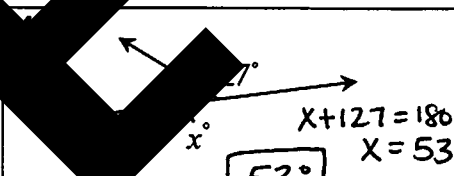
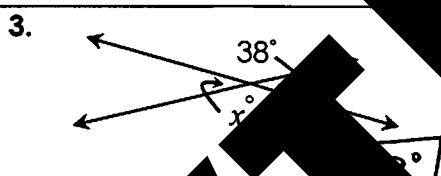
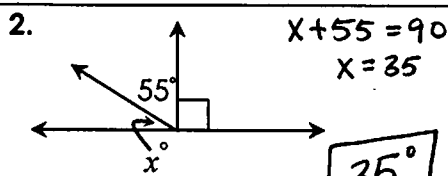
c) $\angle 3$ and $\angle 5$

Vertical, congruent,
Supplementary

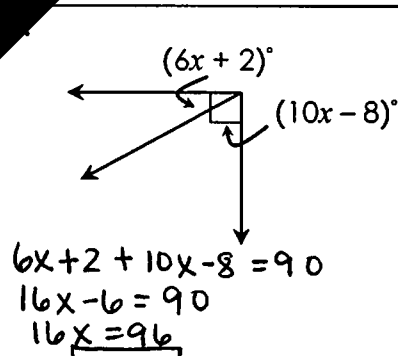
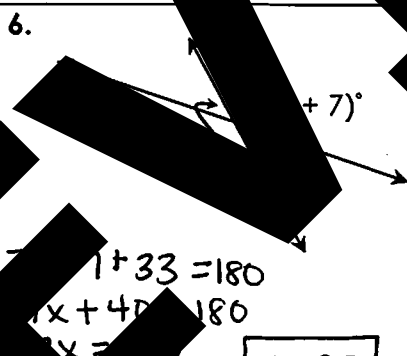
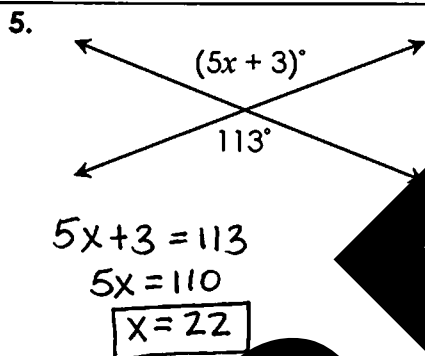
d) $\angle 1$ and $\angle 5$

Adjacent

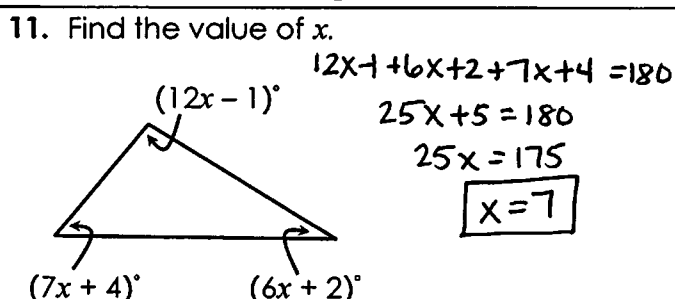
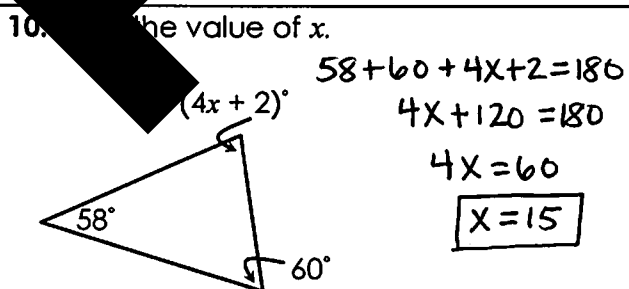
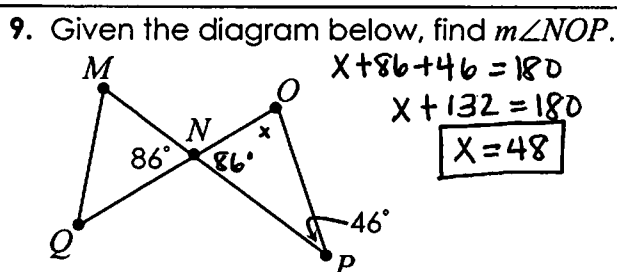
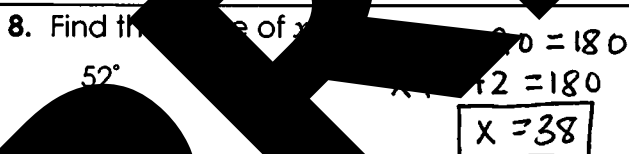
Find each measure.



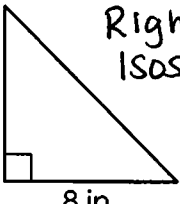
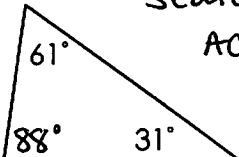
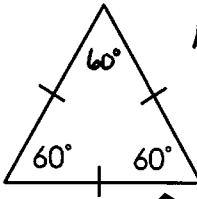
Find the value of x .



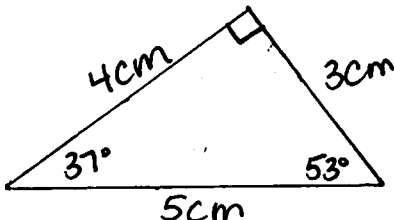
Topic 2: Triangles



Classify each triangle by its angles and sides.

12.  Right, Isosceles	13.  Scalene, Acute	14.  Acute, Equilateral
---	---	---

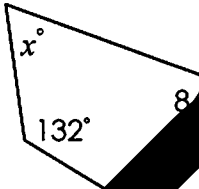
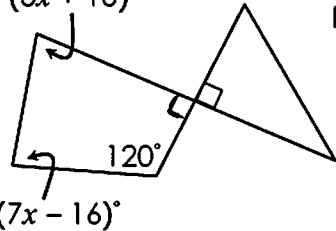
Construct each triangle using the given measures.

15. side lengths of 4 cm and 5 cm 	16. side lengths of 2 cm and 6 cm, included angle of 40 degrees 
--	---

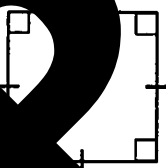
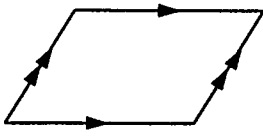
Determine if the following side lengths could form a triangle. Prove your answer with an inequality.

17. 17 cm, 18 cm, 35 cm $17 + 18 > 35$ $35 > 35$ No	18. 9 in, 9 in, 18 in $9 + 9 > 18$ $18 > 18$ No	19. 22 mm, 24 mm, 45 mm $22 + 24 > 45$ $46 > 45$ Yes
---	---	--

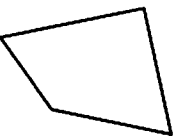
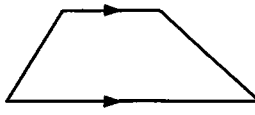
Topic 3: Quadrilaterals

20. Find the missing angle measure.  $x + 132 + 84 + 80 = 360$ $x + 296 = 360$ $x = 64$	21. Find the value of x.  $5x + 10 + 7x - 16 + 120 + 90 = 360$ $12x + 204 = 360$ $12x = 156$ $x = 13$
---	--

Classify each figure using all names that apply.

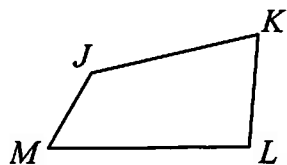
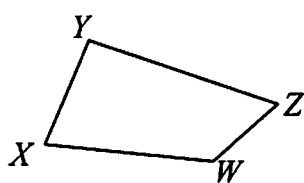
 ☒ Quadrilateral ☐ Trapezoid ☐ Isosceles Trapezoid ☒ Parallelogram ☒ Rectangle ☒ Rhombus ☒ Square	23.  ☒ Quadrilateral ☐ Trapezoid ☐ Isosceles Trapezoid ☒ Parallelogram ☐ Rectangle ☐ Rhombus ☐ Square
--	---

Classify each figure using the name that best describes it.

24.  Quadrilateral	25.  Trapezoid	26.  Rectangle
--	--	--

Topic 4: Congruent Polygons

27. If quadrilateral $WXYZ \cong$ quadrilateral $JKLM$, identify the congruent parts.



$$\angle W \cong \angle J$$

$$\overline{JK} \cong \overline{WX}$$

$$\angle X \cong \angle K$$

$$\overline{KL} \cong \overline{XY}$$

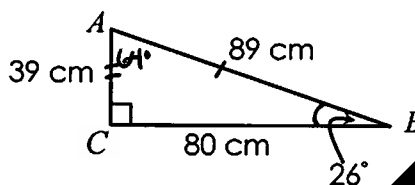
$$\angle Y \cong \angle L$$

$$\overline{LM} \cong \overline{YZ}$$

$$\angle Z \cong \angle M$$

$$\overline{JM} \cong \overline{WZ}$$

28. If $\triangle ABC \cong \triangle DFE$, find each measure.



$$m\angle D = 64^\circ$$

$$m\angle E = 90^\circ$$

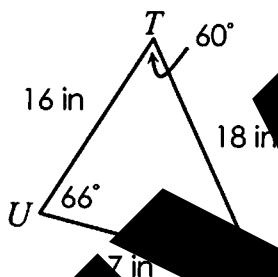
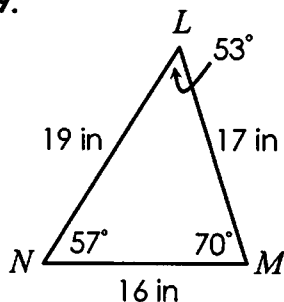
$$m\angle F = 26^\circ$$

$$DF = 39 \text{ cm}$$

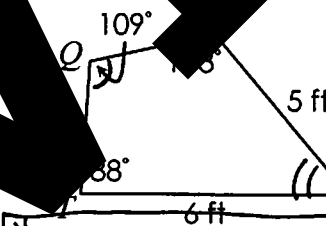
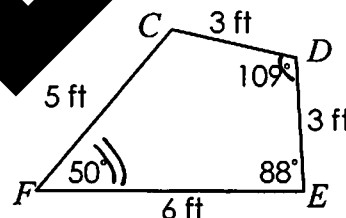
$$EF = 80 \text{ cm}$$

Determine if the polygons are congruent. If yes, write the congruence statement.

29.



No

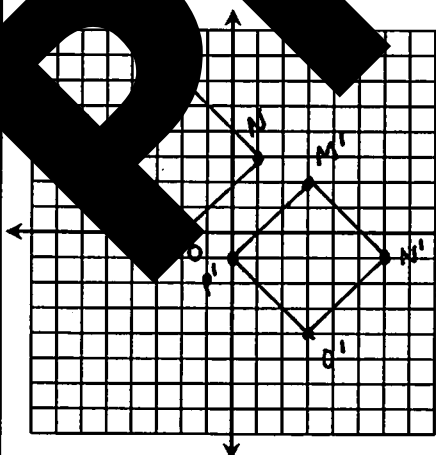


Yes; Quad QRST $\cong$ Quad DCFE

Topic 5: Transformations

Graph and label the figure and its image under the given transformation. Then, give the new coordinates.

31. Square $MNOP$ with vertices $M(-2, 3)$, $N(1, 3)$, $O(-2, 0)$, and $P(-1, 0)$; translated 4 units down and reflected across the y-axis.



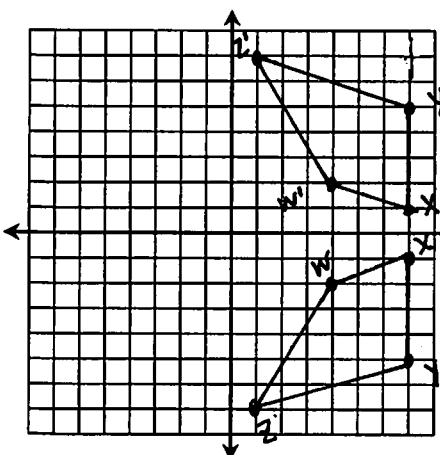
$$M'(\underline{2}, \underline{2})$$

$$N'(\underline{1}, \underline{-1})$$

$$O'(\underline{2}, \underline{-4})$$

$$P'(\underline{0}, \underline{-1})$$

32. Trapezoid $WXYZ$ with vertices $W(4, -2)$, $X(7, -1)$, $Y(7, -5)$, and $Z(1, -7)$; reflected in the x-axis.



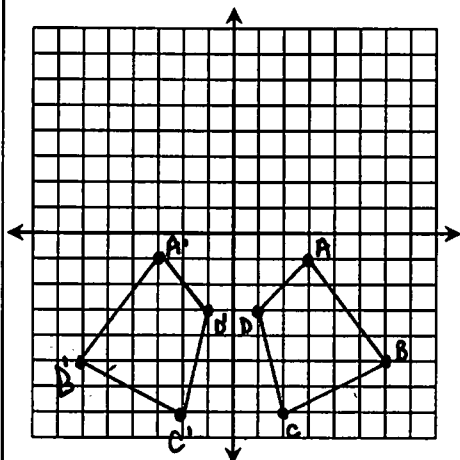
$$W'(\underline{4}, \underline{2})$$

$$X'(\underline{7}, \underline{1})$$

$$Y'(\underline{7}, \underline{5})$$

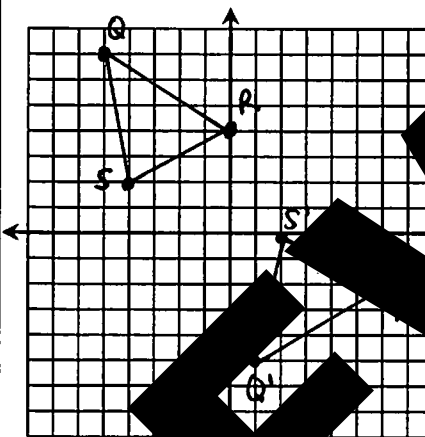
$$Z'(\underline{1}, \underline{7})$$

33. Quadrilateral $ABCD$ with vertices $A(3, -1)$, $B(6, -5)$, $C(2, -7)$, and $D(1, -3)$; translated 6 units up and reflected in the y -axis.



$A'(-3, 5)$
 $B'(-6, 1)$
 $C'(-2, -1)$
 $D'(-1, 3)$

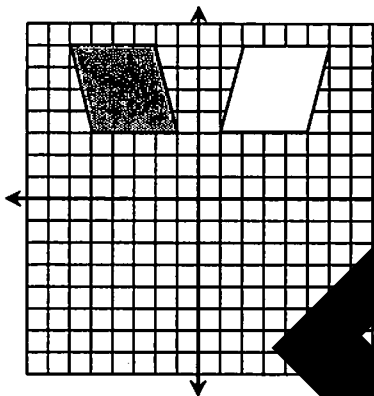
34. Triangle QRS with vertices $Q(-5, 7)$, $R(0, 4)$, and $S(-4, 2)$; reflected in the x -axis, then translated six units right and two units up



$Q'(-1, -5)$
 $R'(6, -2)$
 $S'(-2, 0)$

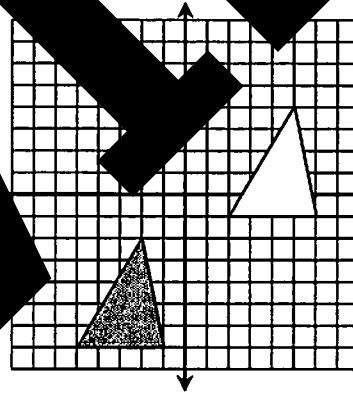
Determine if the shaded figure is a translation and/or reflection of the white figure. If yes, describe the transformation.

35.



Reflection;
 y -axis

36.



Translation;
 Left 7,
 Down 5

Describe the translation of the figure to its image.

37. $A(-2, 5) \rightarrow A'(1, 1) \rightarrow C'(5, 1)$

Down 4

Left 1, up 2

39. $R(-4, -3) \rightarrow R'(4, 3)$

Right 8,
 up 6

is the image of M after a translation of 3 units down and 2 units left. Give the coordinates of M .

$M(6, -3)$

41. $P'(1, -3)$ is the image of P after a translation of 6 units right and 4 units up. Give the coordinates of P .

$P(-5, -7)$

Describe the reflection of the point to its image.

42. $T(1, 7) \rightarrow T'(-1, 7)$

y -axis

43. $Q(-2, -2) \rightarrow Q'(-2, 2)$

x -axis

44. $W(-3, 5) \rightarrow W'(3, 5)$

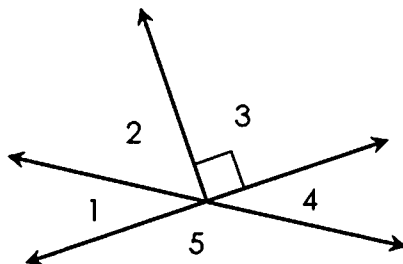
y -axis

Name: _____

Date: _____ Per: _____

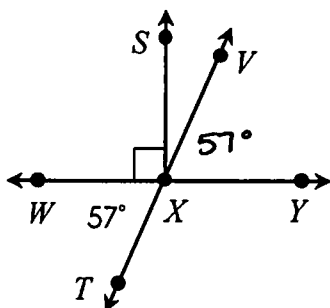
Unit 6 Test Geometry

1. Given the diagram below, which statements are true? Check all that apply.



- ☒ $\angle 1$ and $\angle 4$ are vertical and congruent angles.
- ☐ $\angle 1$ and $\angle 5$ are adjacent and complementary angles.
- ☐ $\angle 2$ and $\angle 4$ are vertical and complementary angles.
- ☒ $\angle 4$ and $\angle 5$ are adjacent and supplementary angles.

For questions 2-4, find each angle measure using the diagram below.



2. $m\angle TXY$

$$\begin{array}{r} 57 + x = 180 \\ -57 \quad -57 \\ \hline x = 123 \end{array}$$

$m\angle TXY = 123^\circ$

3. $m\angle VXY$

$m\angle VXY = 57^\circ$

4. $m\angle SXV$

$$\begin{array}{r} x + y = 90 \\ -57 \quad -57 \\ \hline y = 33 \end{array}$$

$m\angle SXV = 33^\circ$

5. If $\angle 1$ and $\angle 2$ are vertical angles and $m\angle 1 = 108^\circ$, find $m\angle 2$.

$m\angle 2 = 108^\circ$

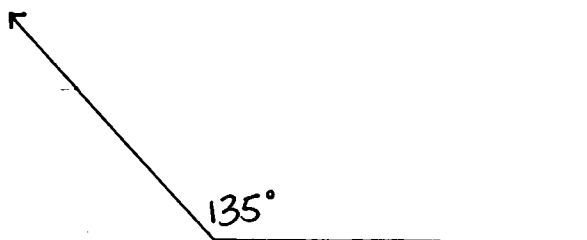
If $\angle A$ and $\angle B$ are complementary angles and $m\angle B = 68^\circ$, find $m\angle A$.

$$\begin{array}{r} 68 + x = 90 \\ -68 \quad -68 \\ \hline x = 22 \end{array}$$

$m\angle A = 22^\circ$

If $\angle P$ and $\angle Q$ are supplementary angles and $m\angle P = 45^\circ$, construct $\angle Q$, give its measure, and classify it as acute, right, obtuse, or straight.

$$\begin{array}{l} x = 180 \\ x = 135 \end{array}$$



$m\angle Q = 135^\circ$

Classify:
obtuse

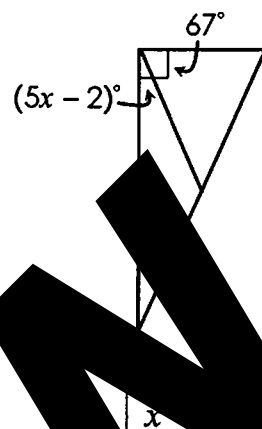
8. Which statement is always true?

- A. Two right angles are complementary.
- B. Given two vertical in which one is acute, the other must be obtuse.
- C. If two angles are complementary, then they are both acute.
- D. If two angles are supplementary, then they are adjacent.

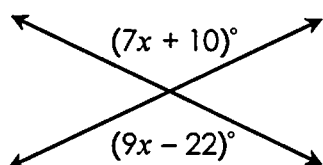
C

9. Solve for x.

$$\begin{aligned} 5x - 2 + 67 &= 90 \\ 5x + 65 &= 90 \\ 5x &= 25 \\ x &= 5 \end{aligned}$$



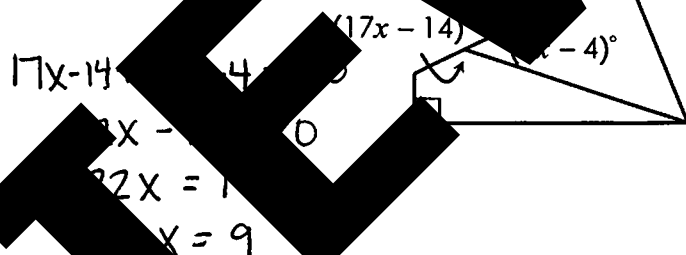
10. Solve for x.



$$\begin{aligned} 7x + 10 &= 9x - 22 \\ 10 &= 2x - 22 \\ 32 &= 2x \\ x &= 16 \end{aligned}$$

x = 16

11. Solve for x.



$$\begin{aligned} 17x - 14 + 4 &= 90 \\ 17x - 10 &= 90 \\ 17x &= 100 \\ x &= 9 \end{aligned}$$

x = 9

12. Given the diagram below, find m∠M. Solve for x.

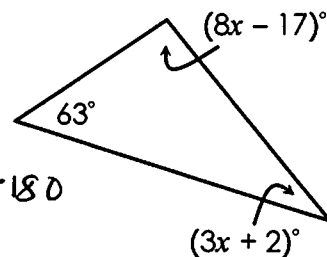


- A. 107°
- B. 100°
- C. 112°

$$\begin{aligned} 63 + 8x - 17 + 3x + 2 &= 180 \\ 11x + 48 &= 180 \\ 11x &= 132 \\ x &= 12 \end{aligned}$$

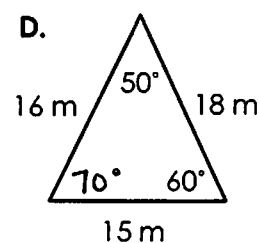
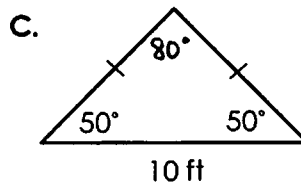
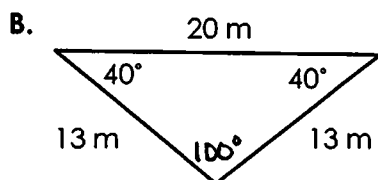
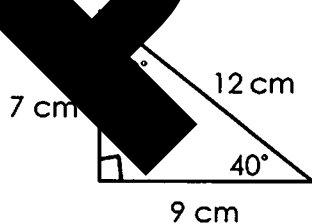
A

$$\begin{aligned} 63 + 8x - 17 + 3x + 2 &= 180 \\ 11x + 48 &= 180 \\ 11x &= 132 \\ x &= 12 \end{aligned}$$



x = 12

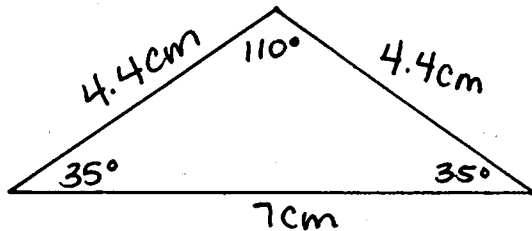
13. Which diagram shows an acute isosceles triangle?



C

For questions 15-16, construct a triangle with the given measurement. Label all side and angle measures, then classify the triangle by its angles and sides.

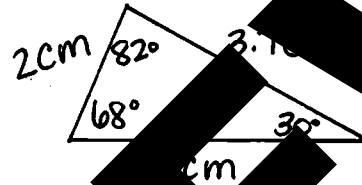
15. A triangle with two 35° angles.



Classify:

Obtuse, Isosceles

16. A triangle with two side lengths measuring 2 cm and 4 cm, with a 68° angle between them.



Classify:

Acute, Scalene

17. Which side lengths could form a triangle? Check all that apply.

☐	5 cm, 8 cm, 13 cm
☒	3 m, 3 m, 3 m
☒	14 in, 17 in, 21 in
☐	10 ft, 10 ft, 24 ft
☐	4.5 m, 8 m, 8 m

18. Which angle measures create a unique triangle?

A. A triangle with two 70° angles.

B. A triangle with sides measuring 6 feet and 8 feet.

C. A right triangle with one side that measures 4 inches.

D. A triangle with two sides measuring 3 meters and a 150° degree between them.

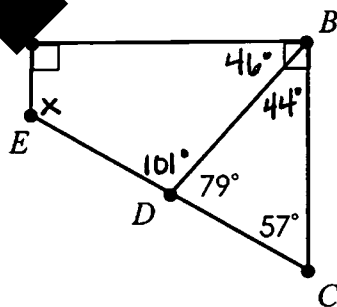
D

19. In the diagram below, find $m\angle AED$.

$$46 + 9 + x = 360$$

$$55 + x = 360$$

$$x = 123$$



- A. 110°
- B. 116°
- C. 118°
- D. 123°

D

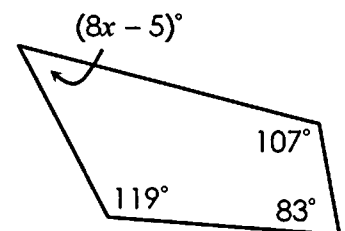
20. Solve for x .

$$8x - 5 + 119 + 107 + 83 = 360$$

$$8x + 304 = 360$$

$$8x = 56$$

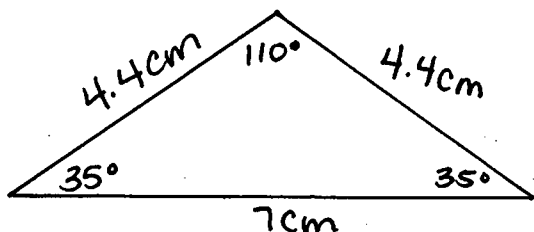
$$x = 7$$



$x = 7$

For questions 15-16, construct a triangle with the given measurement. Label all side and angle measures, then classify the triangle by its angles and sides.

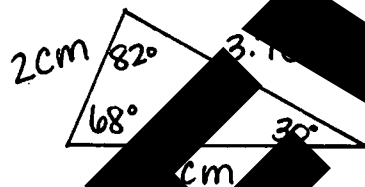
15. A triangle with two 35° angles.



Classify:

Obtuse, Isosceles

16. A triangle with two side lengths measuring 2 cm and 4 cm, with a 68° angle between them.



Classify:

Acute, Scalene

17. Which side lengths could form a triangle? Check all that apply.

☐	5 cm, 8 cm, 13 cm
☒	3 m, 3 m, 6 m
☒	14 in, 17 in, 24 in
☐	10 ft, 24 ft, 34 ft
☐	4.5 m, 8 m, 13 m

18. Which angle measures create a unique triangle?

A. A triangle with two 70° angles.

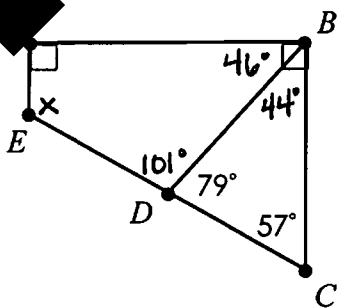
B. A triangle with sides measuring 6 feet and 8 feet.

C. A triangle with sides measuring 4 inches, and 9 inches.

D. A triangle with two sides measuring 3 meters and a 150° degree between them.

D

19. In the diagram below, find $m\angle AED$.

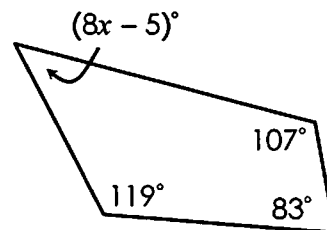


- A. 110°
B. 116°
C. 118°
D. 123°

D

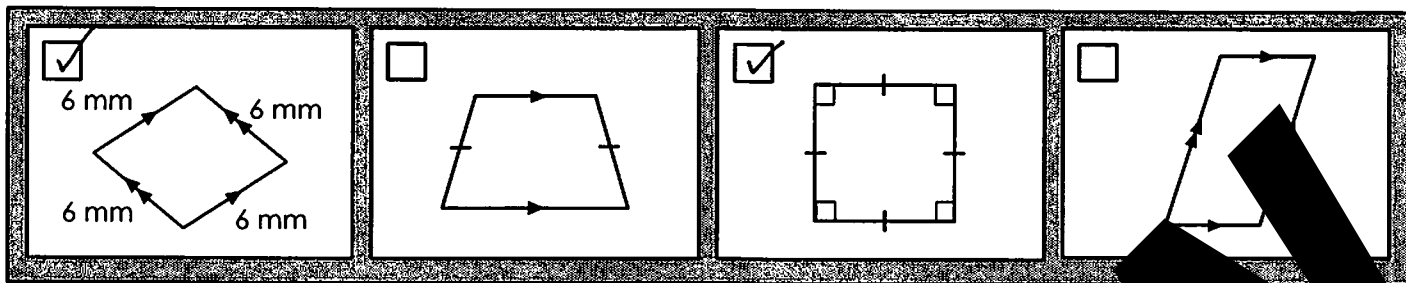
20. Solve for x.

$$\begin{aligned} 8x - 5 + 119 + 107 + 83 &= 360 \\ 8x + 304 &= 360 \\ 8x &= 56 \\ x &= 7 \end{aligned}$$



x = 7

21. Which shape is both a parallelogram and rhombus? Check all that apply.



22. Alex drew a shape with four sides and four right angles. Which figure best describes the shape that Alex drew?

- A. Quadrilateral
- B. Parallelogram
- C. Rectangle
- D. Square

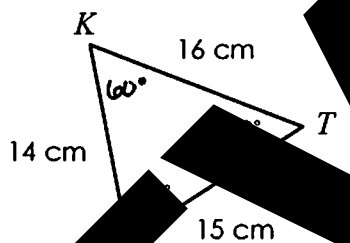
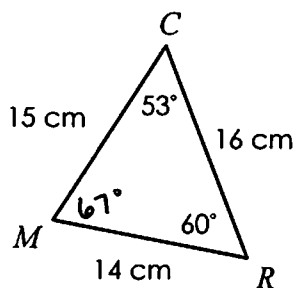
C

23. Which shape is not possible?

- A. A parallelogram with four right angles.
- B. A rectangle with four congruent sides.
- C. A rhombus that is not a square.
- D. A square that is not a rectangle.

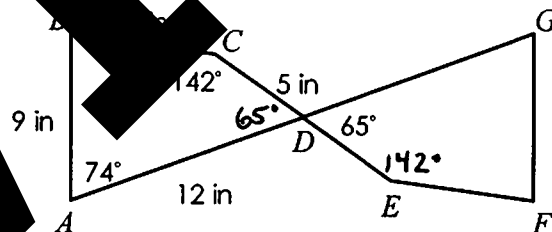
D

24. Complete the congruency statement below.



$\triangle MCR \cong \triangle KTK$

quadrilateral $\cong$ quadrilateral $GFED$, in which measure

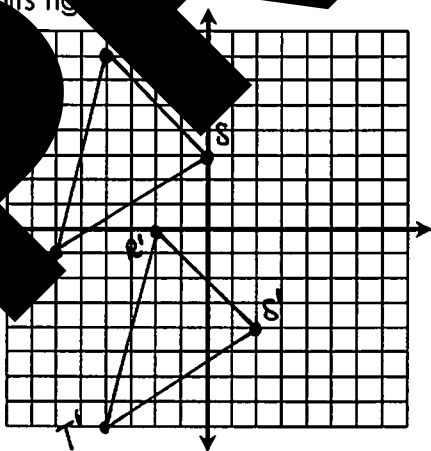


$m\angle F = 79^\circ$

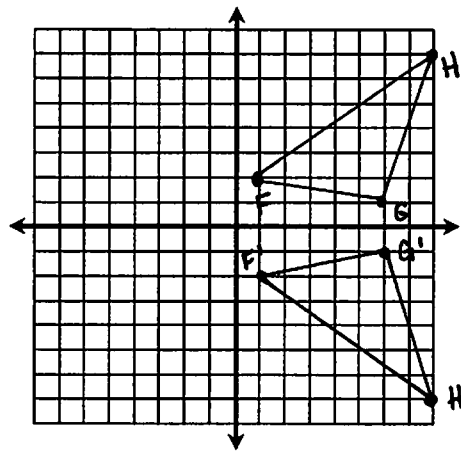
$EF = 7 \text{ in}$

For questions 26 and 27, draw the figure and its image under the given transformation(s). Then, give the coordinates.

26. $\triangle RST$ with vertices $R(7, 1)$, $S(0, 3)$, and $T(-6, -1)$. Translate the triangle down and two units right.



27. $\triangle FGH$ with vertices $F(1, 2)$, $G(6, 1)$, and $H(8, 7)$: reflected over the x-axis



$R': (-2, 0)$

$S': (2, -4)$

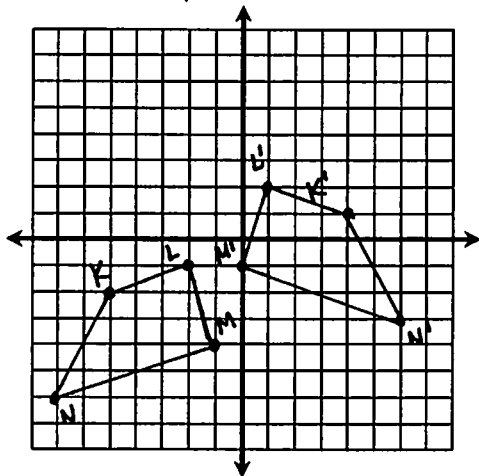
$T': (-4, -8)$

$F': (1, -2)$

$G': (6, -1)$

$H': (8, -7)$

28. Trapezoid $KLMN$ with vertices $K(-5, -2)$, $L(-2, -1)$, $M(-1, -4)$, and $N(-7, -6)$: reflected over the y -axis, then translated one unit left and three units up



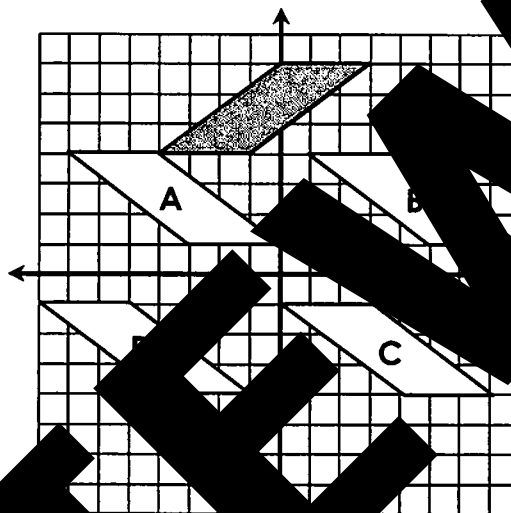
K' : $(4, 1)$

L' : $(1, 2)$

M' : $(0, -1)$

N' : $(6, -3)$

29. If the shaded parallelogram is translated three units down and four units left, then reflected over the x -axis, which parallelogram represents the image? Write the letter in the box.



D

30. Point $N'(-3, 1)$ is the image of point $N(3, -1)$. Which of the following transformations occurred?

- A. Point N was reflected over the x -axis.
- B. Point N was reflected over the y -axis.
- C. Point N was translated three units up and three units left.
- D. Point N was translated two units up and six units left.

D

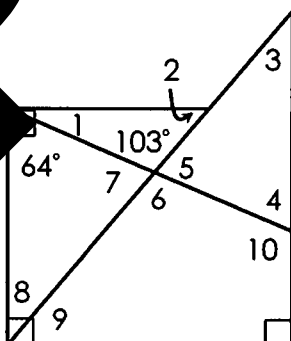
31. Point $B'(-5, -2)$ is the image of point $B(5, 2)$ after a reflection. Name the line of reflection.

y -axis

32. Point $K'(-3, 6)$ is the image of point K after a translation of five units up and seven units left. Give the coordinates of point K .

$(4, 1)$

BONUS: Find each angle measure.



$$m\angle 1 = 26^\circ$$

$$m\angle 6 = 103^\circ$$

$$m\angle 2 = 51^\circ$$

$$m\angle 7 = 77^\circ$$

$$m\angle 3 = 39^\circ$$

$$m\angle 8 = 39^\circ$$

$$m\angle 4 = 64^\circ$$

$$m\angle 9 = 51^\circ$$

$$m\angle 5 = 77^\circ$$

$$m\angle 10 = 116^\circ$$

CREDITS

I use clipart and
fonts in my products



Many thanks to these
talented artists!