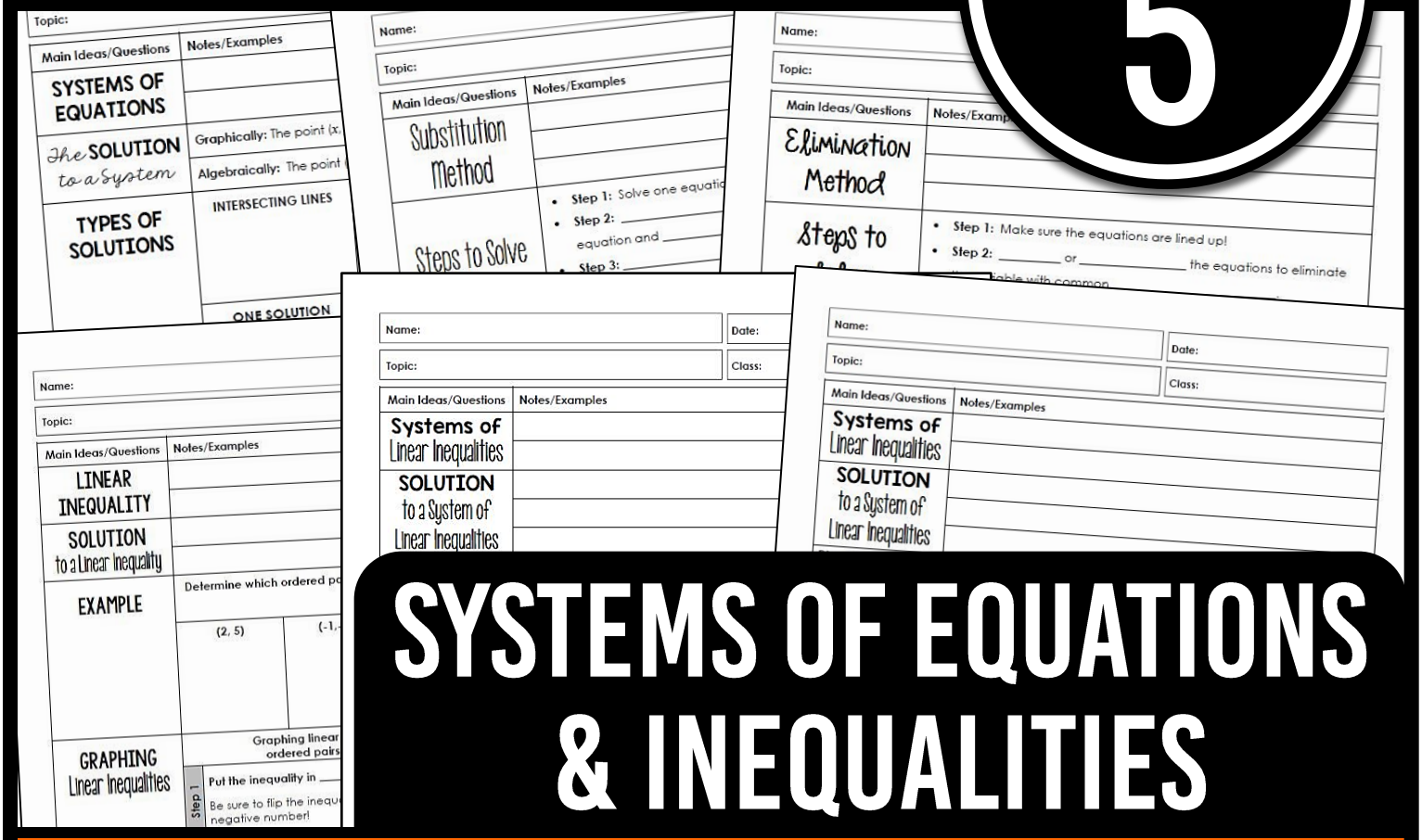
ALGEBRA I

Unit 5



SYSTEMS OF EQUATIONS & INEQUALITIES

NOTES • HOMEWORK • QUIZZES • TEST

Created by: ALL THINGS ALGEBRA®

Unit 5 – Systems of Equations & Inequalities: Sample Unit Outline

	TOPIC	HOMEWORK
DAY 1	Solving Systems of Equations by Graphing	HW #1
DAY 2	Solving Systems of Equations by Substitution	HW #2
DAY 3	More Practice with Graphing vs. Substitution Methods	↓
DAY 4	**Quiz 5-1**	None
DAY 5	Solving Systems of Equations by Elimination (Day 1)	HW #3
DAY 6	Solving Systems of Equations by Elimination (Day 2)	HW #4
DAY 7	Comparing Methods to Solving Systems	HW #5
DAY 8	Word Problems	HW #6
DAY 9	**Quiz 5-2**	None
DAY 10	Solving Systems by Matrices	HW #7
DAY 11	Linear Inequalities	HW #8
DAY 12	Systems of Linear Inequalities	HW #9
DAY 13	**Quiz 5-3**	None
DAY 14	Systems of Linear Inequalities Word Problems	HW #10
DAY 15	Review for Test; Complete Study Guide	HW #11
DAY 16	**UNIT 5 TEST**	None

See sample images of the pages on the next page.

Name: Date:

Topic: Class:

Main Ideas/Questions	Notes/Examples
SYSTEMS OF EQUATIONS	
The SOLUTION to a System	Graphically: The point (x, y) Algebraically: The point $(x$
TYPES OF SOLUTIONS	INTERSECTING LINES
	ONE SOLUTION

Name: Dat

Topic: Cla

Main Ideas/Questions	Notes/Examples
Substitution Method	
Steps to Solve	• **Step 1:** So • **Step 2:** _____ equation

Name: Date:

Topic: Class:

Main Ideas/Questions	Notes/Examples
Elimination Method	
Steps to Solve	• **Step 1:** Make sure the equations are lined up! • **Step 2:** _____ or _____ the the variable with common _____ • **Step 3:** _____ for the remaining v • **Step 4:** _____ your answer

GROUP MEMBERS: PERIOD: _____

Comparing Methods to Solving Systems

Systems of equations can be solved by graphing, substitution, or elimination. However, there are situations where one method may be more sophisticated than another. Solve the following systems using the graphing, substitution, or elimination method.
You may only use each method once.

SYSTEM A Method of Choice: _____ Graphing _____ Substitution _____ Elimination

$\begin{cases} x - y = -2 \\ 7x + 2y = -5 \end{cases}$

Solution:

_ Elimination

Solution:

_ Elimination

SYSTEMS OF EQUATIONS *Application*

Many real world problems can be modeled and solved using a system of equations. Use the process below to solve these problems

1. DEFINE YOUR TWO VARIABLES
2. WRITE A SYSTEM OF EQUATIONS using the given information.
3. SOLVE THE SYSTEM!
4. ANS Give exa problem

1. The sum of two numbers is 30 and their difference is 12. Find the two numbers.

2. The sum of two numbers is 24 a difference is 2. What are the n

Name: _____ **Algebra I**

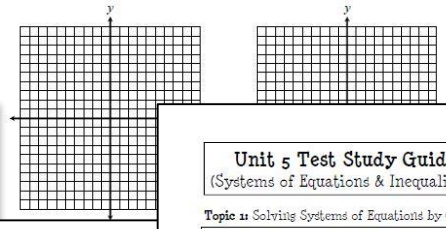
Date: _____ Bell: _____ **Unit 5:** Systems of Equations & Inequalities

Quiz 5-2: Solving Systems (All Methods) – Including Word Problems

For questions 1 and 2, solve the system by GRAPHING.

1. $\begin{cases} x - y = -9 \\ 3x + 4y = 8 \end{cases}$

2. $\begin{cases} 3x - y = -1 \\ x - 2y = -12 \end{cases}$



ANSWERS
1. _____
2. _____
3. _____
4. _____

Name: Date:

Topic: Class:

Main Ideas/Questions	Notes/Examples
LINEAR INEQUALITY	
SOLUTION to a Linear Inequality	
EXAMPLE	Determine which ordered pairs are solutions to the linear inequality below: $2x - 3y < 15$

(2, 5)	(-1, -7)	(3, -4)	(0, 0)

hing linear inequalities is a way to show ALL the dered pairs that are solutions! Steps to graph:

ality in _____ - _____ form.

Name: Date:

Topic: Class:

Main Ideas/Questions	Notes/Examples
Systems of Linear Inequalities	
SOLUTION to a System of Linear Inequalities	

Directions: Graph each system of linear inequalities to show all possible solu

1. $\begin{cases} y > -x - 1 \\ y < x - 5 \end{cases}$

2. $\begin{cases} y < \frac{1}{3}x + 7 \\ y \geq -x + 4 \end{cases}$

3. $\begin{cases} x - 4y \leq 24 \\ y \leq 2x + 1 \end{cases}$

4. $\begin{cases} x < -4 \\ 3x + 2y \leq -2 \end{cases}$

5. $\begin{cases} 4x - 5y \geq -35 \\ y > -x - 2 \end{cases}$

6. $\begin{cases} 6x + 4y > 12 \\ 3x - 4y > 8 \end{cases}$

Systems of Inequalities

1. Suppose you buy flour and cornmeal in bulk to make flour $1.50 per pound and cornmeal costs $2.50 per pound. Yo and cornmeal, but you need at least 6 pounds altogether.
   a. Write and graph a system of linear inequalities:
   b. Write two possible solutions:
      i. _____
      ii. _____

2. A seafood restaurant owner orders perch and salmon. Per to buy at least 50 pounds of fish but cannot spend more th
   a. Write and graph a system of linear inequalities:
   b. Write two possible solutions:
      i. _____
      ii. _____

3. The "We Sell CDs" website plans to purchase ads in a local operating budget will allow them to spend at most $3000 cost $30 to appear in the weekday paper and $50 to appe run at least 20 ads.
   a. Write and graph a system of linear inequalities:
   b. Write two possible solutions:
      i. _____
      ii. _____

Unit 5 Test Study Guide
(Systems of Equations & Inequalities)

Name: _____

Date: _____

Topic 1: Solving Systems of Equations by Graphing

Solve each system of equations by graphing.

1. $\begin{cases} x + y = 2 \\ x - y = 4 \end{cases}$

2. $\begin{cases} 3x - 5y = 15 \\ y = 2x + 4 \end{cases}$

3. $\begin{cases} x - 4y = 28 \\ x + 2y = -2 \end{cases}$

4. $\begin{cases} 3y = 4x - 6 \\ 8x - 6y = -30 \end{cases}$

Topic 2: Solving Systems of Equations by Substitution

Solve each system of equations by substitution.

5. $\begin{cases} y = 2x + 3 \\ y = -x - 9 \end{cases}$

6. $\begin{cases} 2x + 3y = 4 \\ y = 5x - 27 \end{cases}$

Name: _____

Date: _____ Bell: _____

Algebra I Unit 5 Test
(Systems of Equations & Inequalities)

SHOW ALL WORK NEEDED TO ANSWER EACH QUESTION!
PLACE YOUR FINAL ANSWER IN THE BOX. GOOD LUCK!

For questions 1 and 2, solve the system of equations by GRAPHING.

1. $\begin{cases} x + y = 4 \\ 2x - 5y = 15 \end{cases}$

2. $\begin{cases} y = -2x + 3 \\ 8x + 4y = 12 \end{cases}$

For questions 3 and 4, solve the system of equations by SUBSTITUTION.

3. $\begin{cases} 6x + 2y = -26 \\ x - 6y = 21 \end{cases}$

4. $\begin{cases} 5x + y = -10 \\ 4x - 7y = -8 \end{cases}$

For questions 5-8, solve the system of equations by ELIMINATION.

5. $\begin{cases} x + 2y = -14 \\ x - y = 13 \end{cases}$

6. $\begin{cases} 2x - 3y = 23 \\ x + 3y = -20 \end{cases}$