

ALGEBRA I

Unit 4

SLOPE FORMULA

EXAMPLES

GRAPHING LINEAR EQUATIONS (By Slope-Intercept)

X- and Y-Intercepts

WRITING LINEAR EQUATIONS (Given Two Points)

EXAMPLES

Parallel Lines

Perpendicular Lines

Linear Regression

Calculator Steps

Examples

LINEAR EQUATIONS

NOTES • HOMEWORK • QUIZZES • TEST

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Unit 4 - Linear Equations: Sample Unit Outline

	TOPIC	HOMEWORK
DAY 1	Slope from a Graph & Slope Formula	HW #1
DAY 2	Linear Equations: Slope-Intercept Form & Standard Form	HW #2
DAY 3	Graphing Linear Equations (Using Slope-Intercept Form)	HW #3
DAY 4	x - and y -Intercepts	HW #4
DAY 5	Vertical & Horizontal Lines	HW #5
DAY 6	Quiz 4-1	None
DAY 7	The Point-Slope Formula (Given Point and Slope)	HW #6
DAY 8	Point-Slope Formula (Given Two Points)	HW #7
DAY 9	Writing Equations of Lines Review	HW #8
DAY 10	Parallel and Perpendicular Lines	HW #9
DAY 11	More with Parallel & Perpendicular Lines (Writing Equations)	HW #10
DAY 12	Quiz 4-2	None
DAY 13	Linear Equation Word Problems (Day 1)	HW #11
DAY 14	Linear Equation Word Problems (Day 2)	HW #12
DAY 15	Scatter Plots, Line of Best Fit, and Linear Regression	HW #13
DAY 16	Quiz 4-3	None
DAY 17	Unit 4 Review	Study for Test
DAY 18	UNIT 4 TEST	None

See sample images of the pages on the next page.

Name: _____ Date: _____
 Topic: _____ Class: _____

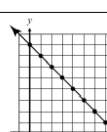
Main Ideas/Questions	Notes/Examples
SLOPE FORMULA	The slope between Formula
EXAMPLES	*It is important! Directions: Find the slope 1. (1, 1) and (4, 3)

Name: _____ Date: _____
 Topic: _____ Class: _____

Main Ideas/Questions	Notes/Examples
GRAPHING LINEAR EQUATIONS (By Slope-Intercept)	Use the steps below to graph an eq 1 Write the equation in slope-intercept form. 2 Graph the y-intercept. This is always on the y-axis. 3 Use the slope to find the next point. 4 Use a ruler to draw a straight line through the points.

Name: _____ Date: _____
 Topic: _____ Class: _____

Main Ideas/Questions	Notes/Examples
X- and Y-Intercepts	<ul style="list-style-type: none"> > The point at which the line intersects the x-axis is called the x-intercept. > The point at which the line intersects the y-axis is called the y-intercept. > Example: Identify the x- and y-intercept of the graph shown to the right.
Finding Intercepts	> To find the x-intercept of an equation:



Quiz 4-1: Slope & Graphing Linear Equations

Identify the following formulas:
 1. Slope Formula _____
 2. _____

- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____

Name: _____ Date: _____
 Topic: _____ Class: _____

Main Ideas/Questions	Notes/Examples
Parallel Lines	Definition: _____ Algebraically, how do we know if two lines are parallel? ← →
Perpendicular Lines	Definition: _____ Algebraically, how do we know if two lines are perpendicular? ↕
What are Negative	Some examples: 1) 3 & -1/3 2) 2 & -1/2 3) -7/8 & 8/7 4) 1 & -1 5) 0 & _____ Segments AB and CD are parallel, perpendicular, or neither:

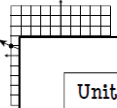
Name: _____ Date: _____
 Topic: _____ Class: _____

Main Ideas/Questions	Notes/Examples
WRITING LINEAR EQUATIONS (Given Two Points)	To write a linear equation that passes through two points and (x2, y2), use the slope formula followed by the point-slope formula: Slope Formula _____ Point-Slope Formula _____

I can write Linear Equations in SLOPE-INTERCEPT FORM GIVEN:

The Slope and y-Intercept
 slope = $\frac{1}{3}$; y-intercept = -5

A Graph



LINEAR EQUATIONS WORD PROBLEMS

Type 1 SLOPE-INTERCEPT

Notes: _____

1. Evan is going to the county fair this weekend. The admission to the fair is \$5. The ride is 50¢. If his parents gave him \$20, write and solve a linear equation to find the number of rides he can go on.
2. While visiting Crimson Lake, Sally decided to go kayaking. The rangers charge \$15 in addition to a \$25.00 deposit to rent the kayak. If she rented the kayak at 2:30 p.m., write and solve a linear equation to find the total cost to rent the kayak.
3. Alex bought a new truck for \$42,935. According to the dealer, the truck will depreciate approximately \$4,200 per year. Write and solve a linear equation to find the number of years until the car is worth \$5,135.
4. If you buy a car wash at the gas station for \$6.00, the cost per gallon is \$1.20. Write and solve a linear equation to find the number of gallons of gas you can buy for \$40.

Type 2 STANDARD FORM

Notes: _____

5. Sam ordered two hamburgers and three hotdogs from the concession stand. His bill came to \$19.05. If hamburgers cost \$5.25 each, write and solve a linear equation to find the cost of each hot dog.

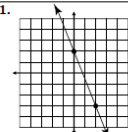
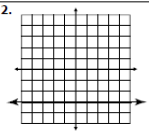
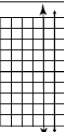
Name: _____ Date: _____
 Topic: _____ Class: _____

Main Ideas/Questions	Notes/Examples								
Linear Regression	Linear regression is a method of finding the line of best fit for a set of data. This can be done with a calculator and will create the equation of the line of best fit.								
Calculator Steps	Enter your data: • Hit STAT, ENTER • Enter x-values in L1 • Enter y-values in L2								
Examples	1. The data in the table below represent the number of Northern Latitudes: <table border="1"> <tr><td>Latitude (°N)</td><td>0</td><td>10</td><td>20</td></tr> <tr><td>Temp (°F)</td><td>79</td><td>81</td><td>83</td></tr> </table> a) Find the line of best fit: _____ b) Estimate the average temperature: _____	Latitude (°N)	0	10	20	Temp (°F)	79	81	83
Latitude (°N)	0	10	20						
Temp (°F)	79	81	83						
	2. The data in the table below represent the number of suitcases on various airlines: <table border="1"> <tr><td>Passengers</td><td>75</td><td>92</td></tr> <tr><td>Suitcases</td><td>159</td><td>180</td></tr> </table> a) Find the line of best fit: _____ b) Estimate the number of suitcases: _____	Passengers	75	92	Suitcases	159	180		
Passengers	75	92							
Suitcases	159	180							
	3. The data in the table below represent the number of graduates at Canyon Valley High School: <table border="1"> <tr><td>Year</td><td>2012</td><td>2013</td></tr> <tr><td>Graduates</td><td>340</td><td>345</td></tr> </table> a) Find the line of best fit: _____ b) Estimate the number of graduates: _____	Year	2012	2013	Graduates	340	345		
Year	2012	2013							
Graduates	340	345							

Unit 4 Test Study Guide (Linear Equations)

Name: _____ Date: _____

Topic 1: Slope (Given a Graph or Ordered Pairs)

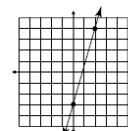
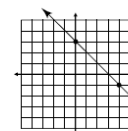
1. 
2. 
3. 

4. (-12, -1) and (-3, -4)
 5. (-11, 7) and (-11, -2)

Topic 2: Slope-Intercept Form vs. Standard Form

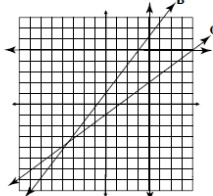
6. Write a linear equation with a slope of 1 and the y-intercept of -7.
7. Identify the slope and y-intercept of the equation $y = -3x$.
8. Identify the slope and y-intercept of the equation $2x + 5y = 20$.
9. Identify the slope and y-intercept of the equation $x - 2y = 2$.

Topic 3: Writing Linear Equations (Given a Graph)

10. Write a linear equation given the graph. 
11. Write a linear equation given the graph. 

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

Use the graph below to answer questions 1 & 2.



1. Which line has a slope of $\frac{3}{4}$?
2. Which line has an undefined slope?
3. What is the slope of the line that contains the points (-6, 1) and (4, -4)?
4. What is the slope of the line that contains the points (13, -2) and (3, -2)?
5. What is the slope of the line whose equation is $2y = 3x + 4$?
6. Which is an equation of the line with a slope of $\frac{1}{4}$ and a y-intercept of -2?

A. 2
 B. -2
 C. $\frac{1}{2}$
 D. $-\frac{1}{2}$

A. $-\frac{2}{5}$
 B. 0
 C. $-\frac{5}{2}$
 D. undefined

A. 3
 B. 2
 C. $\frac{3}{2}$
 D. $\frac{2}{3}$

A. $x - 4y = 8$
 B. $x + 4y = -8$
 C. $4x + y = -2$
 D. $4x - y = 2$