

Name: _____ Period: _____ Teacher: _____ Date: _____

DHS Algebra 1 Fall 2010: Semester Review

1.3 - Translating Expressions

Simplify each of the following.

1. _____ $4 \times 5^2 - 8$.

2. _____ $3 + 3(4 + 5)^3$.

Evaluate each expression.

3. $3x^3 + x^2 - 2y$ when $x = 2$ & $y = 6$

4. $\frac{bc}{b+c}$ when $b = 6$ & $c = 14$

For #5-7, translate the verbal phrases into a mathematical expression.

5. _____ The difference of 12 and a number m .

6. _____ The quotient of twice a number p and 14.

7. _____ 6 more than 4 times a number w .

8. _____ Translate the following into a simplified unit rate. $\frac{80 \text{ miles}}{16 \text{ hours}}$

Solve the word problem.

9. Tickets to a sports museum costs \$19.95 each. There is a \$4 charge for each order no matter how many tickets are ordered.

_____ Write an expression for the cost (in dollars) of ordering tickets.

_____ Then, find the total cost if you order 6 tickets.

1.4 - Writing Equations & Inequalities

10. What is the difference between an expression and an equation?

Write an equation or an inequality for #11-14.

11. _____ The sum of 56 and a number t is equal to 88.

12. _____ The difference of a number p and 14 is equal to 48.

13. _____ The product of 4 and a number k is at most 51.

14. _____ The difference of 22 and the quotient of a number m and 4 is 54.

Check whether the given number is a solution of the equation or inequality. (yes or no)

15. _____ $6f - 7 = 29$; 5

16. _____ $\frac{x-5}{3} \geq 5.9$; 23

1.6 - Representing Functions as Rules & Tables

17. Use the table below to answer the following questions.

Input	Output
0	0
3	0.55
8	4.5
15	6.25
19	8.0

a) _____ Is the pairing a function or a relation?

b) _____ Identify the range.

c) _____ Identify the domain.

18. Draw a mapping of the pairing in the boxes to the right.

x	y
3	- 6
7	8
7	12
11	17
15	20

19. Make an input-output table to represent the function $y = 8x - 6$.

Use $-6, -4, -\frac{1}{2}, \frac{3}{4}$, and 3 for your domain values.

Identify the independent and dependent quantities for #18-19.

20.

Number of gallons of gas bought	Total cost of gas

21.

Amount of money saved	Time saving money

Write a function rule for each of the following.

22.

Input	Output
2	4
3	6
4	8
9	18
10	20

Function Rule: _____

23.

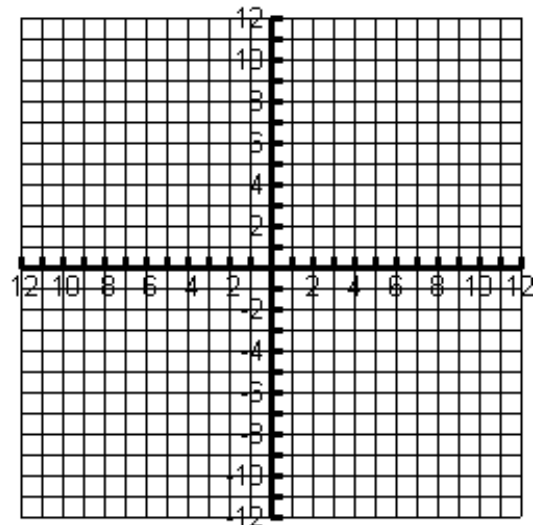
Input	Output
0	12
1	12.75
5	15.75
12	21
16	24

Function Rule: _____

1.7 - Representing Functions as Graphs

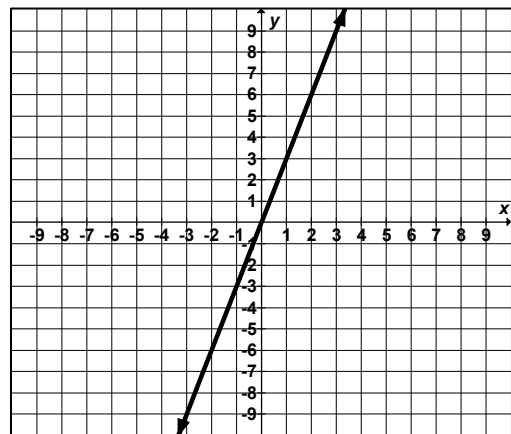
24. Make a table of values for the equation $y = 2x + 1$.
Then, graph the function.

x	y



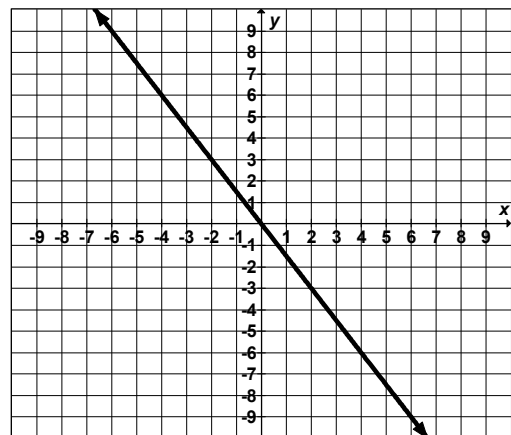
25. Identify the **function rule** from the graph to the right.

Function Rule: _____



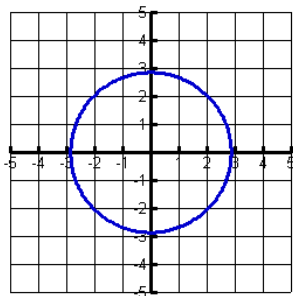
26. Identify the **function rule** from the graph to the right.

Function Rule: _____

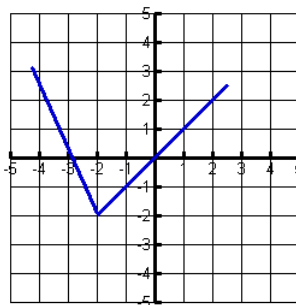


Does each graph represent a function? Why or why not?

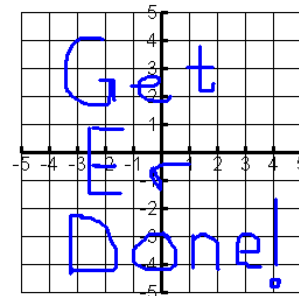
27.



28.



29.



3.1 – 3.4 Solving Equations

Solve.

30. $a + 15 = -28$ _____

31. $-15 = b - 46$ _____

32. $-17.5 = -7d$ _____

33. $\frac{d}{9} = -11.2$ _____

34. $5g - 9 = 21$ _____

35. $6c + 8 = 62$ _____

36. $\frac{m}{2} - 6 = 22$ _____

37. $12 = \frac{4}{7}a + 8$ _____

38. $8s + 4s = 168$

39. $42 = 18b - 4b + 7b$

Write an equation for the function described. Then find the input.

40. The output of a function is fourteen less than six times the input. Find the input when the output is twenty-two.

Equation: _____

Input: _____

Identify the terms, like terms, coefficients, and constant terms of the expression.

41. $8x - 4 + 5x + 6 - 9 - \frac{1}{2}x + \frac{2}{3}$ Terms: _____ Like Terms: _____

Coefficients: _____ Constants: _____

Simplify each expression.

42. $7(w - 5) + 3w$ _____

43. $15t - (t - 4)$ _____

44. $5(n + 7) - 4(3 + n) - 3$ _____

45. $-\frac{3}{4}(12m - 8)$ _____

Solve.

46. $b + 5b - 10 = 14$ _____

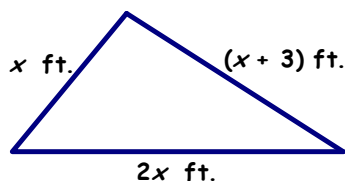
47. $35 = -5 + 2r - 7r$ _____

48. $27 = 3c - 3(6 - 2c)$ _____

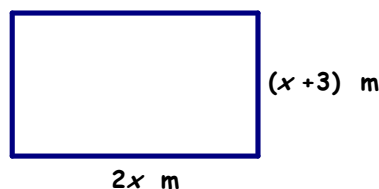
49. $\frac{3}{4}(n + 3) = 9$ _____

Determine the value of x for the triangle or rectangle.

50. Perimeter = 23 ft



51. Perimeter = 24 m



Solve.

52. $11y - 4 = 6y + 1$ _____

53. $5(1 + 4m) = 2(3 + 10m)$ _____

54. $5.4t + 14.6 - 10.1t = 12.8 - 3.5t - 0.6$

55. $2(3g + 2) = \frac{1}{2}(12g + 8)$ _____

6.1 - 6.2 - Solving Inequalities**Write an inequality statement that describes the situation.**

56. You must be at least 16 years old to go on a field trip.

56. _____

57. A child must be taller than 48 inches to get on an amusement ride.

57. _____

Solve each inequality and graph each solution.

58. $9.4 \leq t - 3.5$



58. _____

59. $\frac{g}{-6} > 20$



59. _____

60. $-90 \geq -4t$



60. _____

61. $-5 - 3p > 2p + p + 7$



61. _____

62. $2(a + 4) \leq 16$



62. _____

63. $3(2v - 4) \leq 2(3v - 6)$



63. _____

Translate the verbal sentence into an inequality. Then solve and graph your solution.64. Six less than the product of 3 and b is less than 60.

64. _____

**3.5 - Write Ratios & Proportions / 3.6 - Solving Proportions Using Cross Products**65. _____ Write a ratio of two quantities in **three different ways**.

Tell whether each ratio is in simplest form. If not, write in simplest form.

66. 14 to 18 _____

67. 28 to 32 _____

Which pairs of ratios could form a proportion? Write “Yes” or “No Chanci”

68. $\frac{6}{8}, \frac{15}{20}$ _____

69. $-\frac{4.8}{4}, -\frac{6.4}{5}$ _____

Use proportion to solve each of the following.

70. $\frac{v}{20} = \frac{8}{4}$ _____

71. $-\frac{4.5}{x} = -\frac{1.8}{5}$ _____

72. $\frac{m+3}{8} = 40$ _____

73. $-\frac{3}{11} = \frac{5-h}{h+1.4}$ _____

Write the sentence as a proportion. Then, solve the proportion.

74. 12 is to 18 as d is to 27

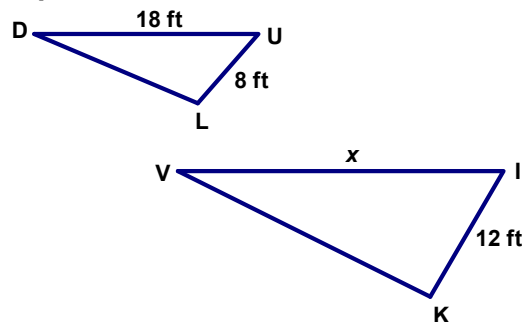
75. 21 is to t as 40 is to 28.

Word Problems. Use a proportion to solve.

76. A blueprint scale for Kumal’s pool is 1in: 12ft. The width of his pool is 48 ft. What is the width of the pool on the blueprint?
- _____

Given the following figures are similar, determine the variable or missing side for the question below. (Note: when figures are similar, the sides are proportional).

77.



78. $\triangle RED \sim \triangle FIN$. The length of $RE = 10$. The length of $RD = 24$. Find the length of FN if the length of FI is 30. (Hint: Draw matching diagrams).

3.7 - Solve Percent Problems/ Percent of Change**Model with an equation and then solve.**

79. _____ What percent of 51 is 17? 80. _____ 9% of 315 is what?

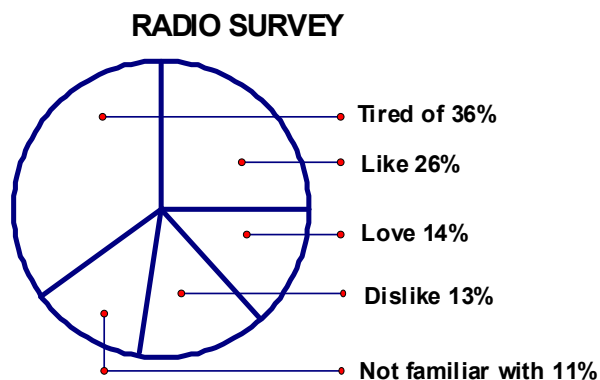
81. _____ 24 is 150% of what?

Solve percent problems. Find the percent for each below. Round your answer to the nearest hundredth.

82. _____ A \$3.00 tip for a \$18.70 taxi fare. 83. _____ 90 rock CDs out of 125 CDs.

WORD PROBLEMS. Set up a proportion and solve.84. Albe has to save 15% of his monthly income. If his monthly take home pay is \$2450, how much will he save?

85. The circle graph shows the results of a radio survey in which 250 listeners were asked to rate a song sung by 75 cent.

A) How many of the listeners who participated in the survey are "tired" of the song?
_____B) How many listeners who participated in the survey "love" the song?
_____**Find the percent of change for each of the following. Identify it as an increase or decrease.****(Remember: Percent of Change = Difference/Original)**

86. POC: _____ Original: 36 ft; New: 45 ft

87. POC: _____ Original: 540 miles; New: 160 miles

Algebraic Properties

Which property is illustrated for each question below.

88. _____ $x \cdot 4 = 4x$

89. _____ $6(-8x - 4 + 2) = -48x - 24 + 12$

3.8 - Literal Equations

Solve the formula for the indicated variable.

90. _____ $V = lwh$ Solve for w .

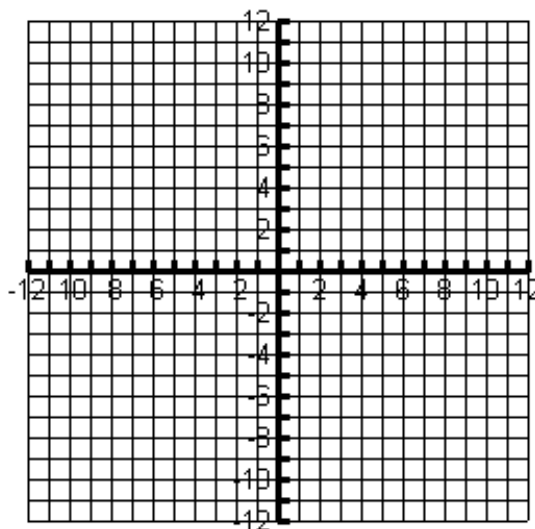
91. _____ $A = \frac{1}{2}bh$ Solve for b .

4.1 - Link Functions to Charts, Graphs & Mapping/ 4.2 - Graph Linear Equations92. Graph the function with the given domain. Then identify the range of the function.

Function: $y = 6x - 2$ **Domain:** $-2, -1, 0, 1, 2$

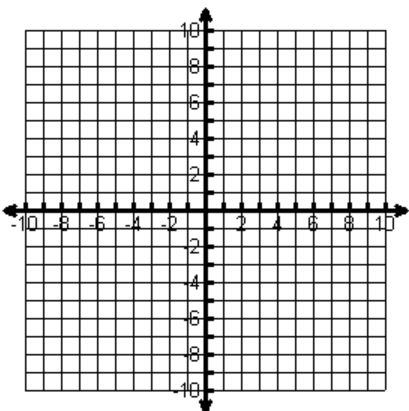
x	$y = 6x - 2$	y

Range: _____

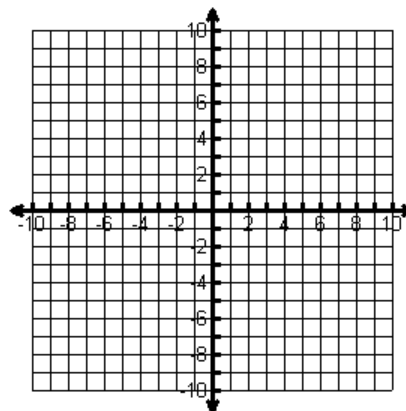


Graph each of the equations below.

93. $-6x + y = 11$



94. $x = -8$



Solve the equation for y . (Hint: get y by itself).

95. _____ $6x - 3y = -9$

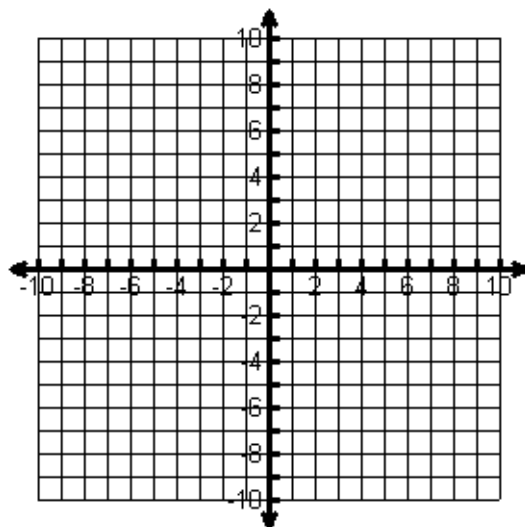
96. _____ $8x + 2y = 10$

Find the x - intercept and the y - intercept of the graph and then graph the equation below.

97. $-3x + 9y = 18$

x - intercept: _____

y - intercept: _____



4.4 – Finding Slope & Rate of Change

Slope formula: _____

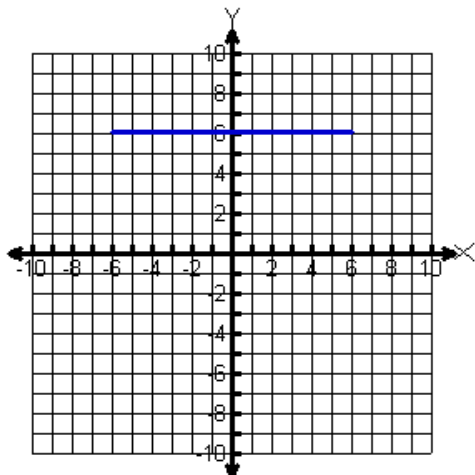
Determine the slope for each of the following.

98. _____ $(2, 1)$ and $(8, 4)$

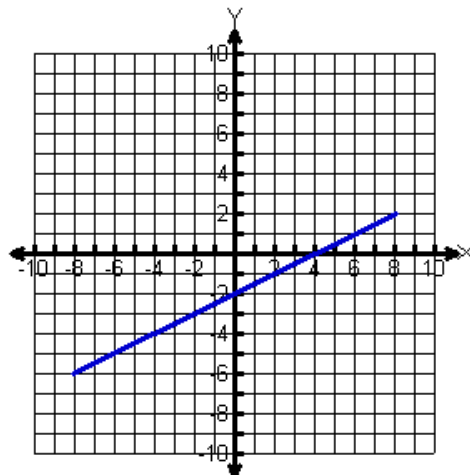
99. _____ $(3, 14)$ and $(3, 5)$

Provide the slope for each of the following.

100. Slope: _____

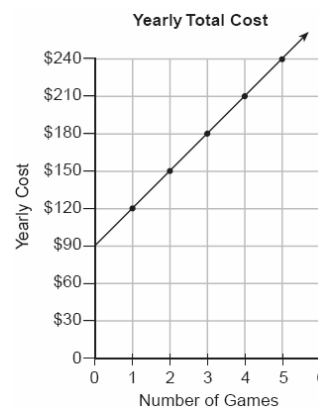


101. Slope: _____



Find the rate of change for the data graphed on the line.

102. _____

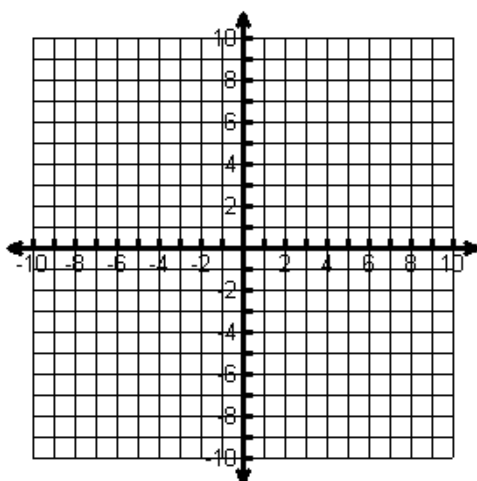


4.5 - Graph Using Slope & y-intercept

Re-write each equation in slope-intercept form. Then, identify the slope and the y-intercept of the line and graph the equation.

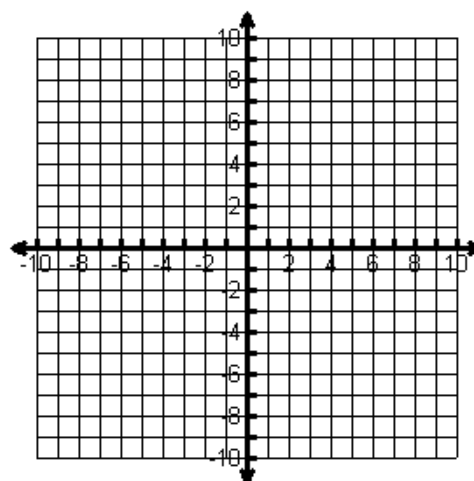
103. $y = 4 - 8x$

Slope: _____ y-intercept: _____



104. $-8x + 2y = 14$

Slope: _____ y-intercept: _____



Tell whether the equations of the two lines below are parallel.

105. _____ $y = 8x - 3$; $8x + y = 3$ 106. _____ $2x + y = 5$; $6y + 12x = 30$

4.6 - Direct Variation

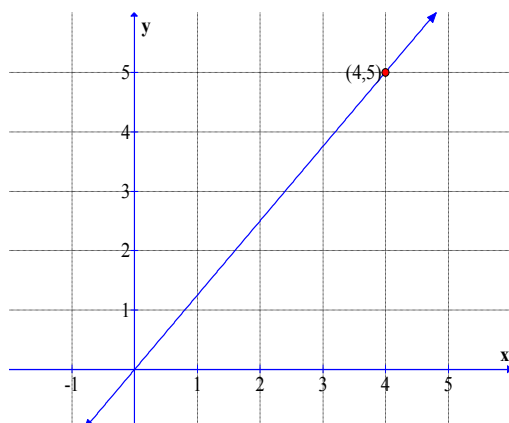
107. Tell whether the table represents a direct variation. If so, write the direct variation equation.

Direct variation: Yes / No

$y =$ _____

x	-3	6	-9	12	-15
y	-2	4	-6	8	-10

108. The graph of the direct variation equation is shown below. Write the direct variation equation.

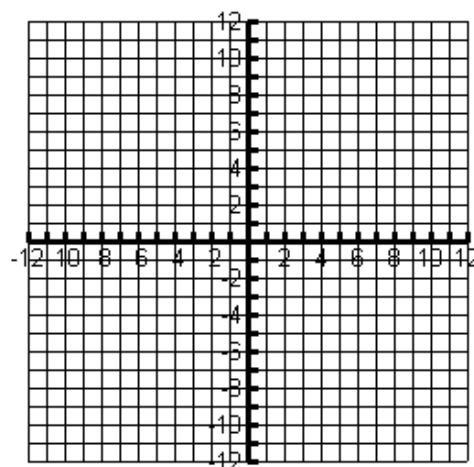


4.7 – Graphing Linear Functions

109. Evaluate the function when $x = -2, 0, 3$. Identify the range and graph the function.

$$g(x) = -3x + 5$$

Range: { }

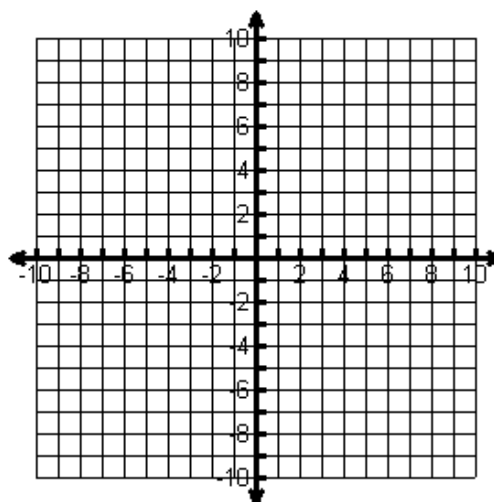


110. Graph the two functions: 1) $f(x) = x$. 2) $f(x) = x + 3$

Identify the parent function:

Describe a similarity with the two functions:

Describe a difference with the two functions:



5.1-5.4 – Write Linear Equations

Slope-Intercept form of a linear equation: _____

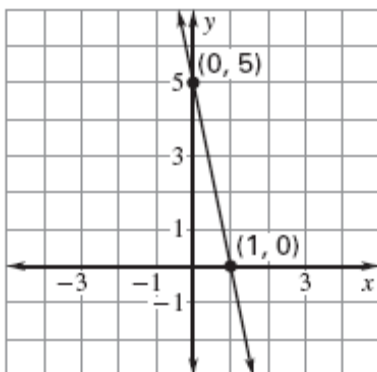
Point-Slope form of a linear equation: _____

Standard Form of a linear equation: _____

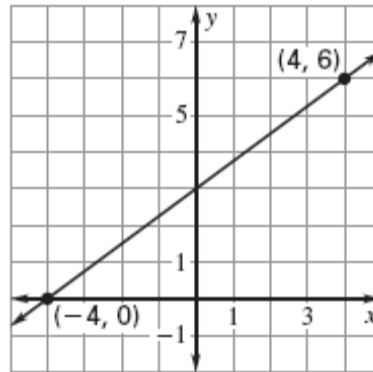
Write the equation of the line in slope-intercept form with the given slope and y -intercept.111. _____ slope: 7; y -intercept: 4 112. _____ slope: -3; y -intercept: 5

Write the equation of the line shown.

113.



114.



Write an equation of the line that passes through the given points.

115. _____ $(-6, 0), (0, -24)$ 116. _____ $(-1, -9), (6, 5)$ Write an equation of the line that passes through the given point and has the given slope m .117. _____ $(5, 1), m = 2$ 118. _____ $(10, 3), m = -2$ Write an equation in point-slope form of the line that passes through the given point and has the given slope m .119. _____ $(-8, 2), m = 5$

120. Which equation represents the line that passes through the point $(-6, 2)$ and has a slope of -1 .

A) $y + 2 = -(x + 6)$

B) $y + 2 = -(x - 6)$

C) $y - 2 = -(x + 6)$

D) $y + 1 = -2(x + 6)$

5.4 - Write Linear Equations in Standard Form

121. Which equation in standard form ($Ax + By = C$) represents line that passes through the two given points $(3, 9)$, $(1, 1)$.

A) $-3x + y = 4$

B) $-4x + y = -3$

C) $3x - y = 4$

D) $4x - y = 3$

5.5 - Write Equations of Parallel & Perpendicular Lines

122. Two lines are parallel if the slopes of the lines are the _____, while two lines are considered _____ if the slopes are _____.

Determine which lines, if any are parallel or perpendicular.

123. a) $y = 4x - 2$

b) $y = -\frac{1}{4}x$

c) $y = -4x + 1$

124. a) $y = \frac{3}{5}x + 1$

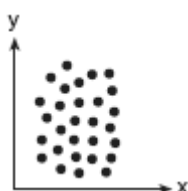
b) $5y = 3x - 2$

c) $10x - 6y = -4$

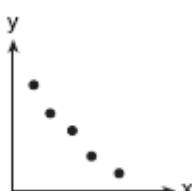
5.6 - Fit a Line to Data

125. Which scatter diagram shows the strongest positive correlation?

A)



B)



C)



D)

