

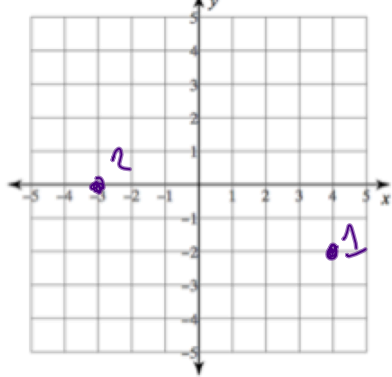
Unit 6 CA: Expressions, Equations and Inequalities

NAME: KEY

Skillz Review: 1 point each.

Plot the points: Label each.

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



Simplify:

$$3) \frac{1 - (-9)}{2 - 4} = \frac{-10}{-2} = -5$$

$$5) \frac{1 - 7}{5 - 8} = \frac{-6}{-3} = 2$$

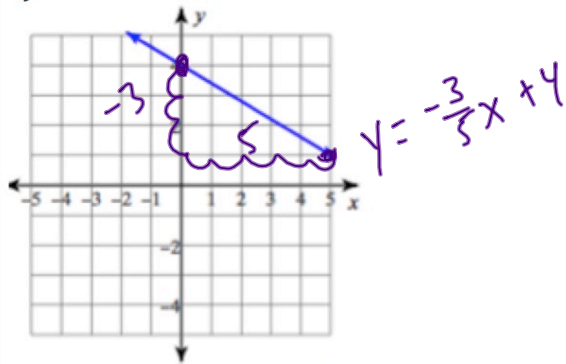
Simplify:

$$4) (-2)^3 - 3(3) = -8 - 9 = -17$$

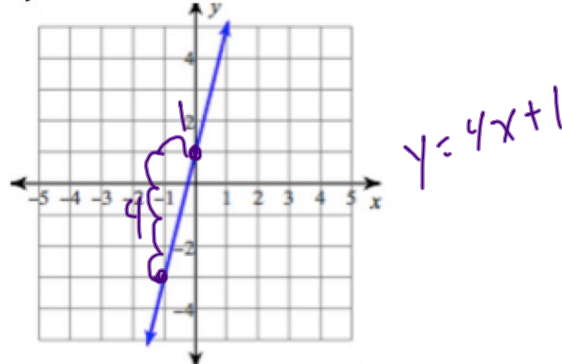
$$6) [5 + (10 - 11)]^2 + (4)(-3) = [5 + -1]^2 + -12 = 4^2 + -12 = 16 + -12 = 4$$

Directions: Write the slope-intercept form of the equation.

1)



2)



3) through: (-4, -2), slope = $\frac{3}{4}$

$$-2 = \frac{3}{4}(-4) + b$$

$$-2 = -3 + b$$

$$1 = b$$

$$y = \frac{3}{4}x + 1$$

4) through: (4, -3), slope = $-\frac{7}{4}$

$$-3 = (-\frac{7}{4})(4) + b$$

$$-3 = -7 + b$$

$$4 = b$$

$$y = -\frac{7}{4}x + 4$$

5) $f(0) = 2, f(-3) = 4$

(0, 2) (-3, 4)

$$b = 2$$

$$m = \frac{4 - 2}{-3 - 0} = -\frac{2}{3}$$

$$y = -\frac{2}{3}x + 2$$

6) through: (1, 5) and (2, -4)

$$m = \frac{5 - (-4)}{1 - 2} = \frac{9}{-1} = -9$$

$$5 = -9(1) + b$$

$$5 = -9 + b$$

$$14 = b$$

$$y = -9x + 14$$

7) through: (5, 1) and (2, 4)

$$m = \frac{4-1}{2-5} = \frac{3}{-3} = -1$$

$$1 = 5(-1) + b$$

$$1 = -5 + b$$

$$6 = b$$

$$y = -x + 6$$

8) through: (0, 5) and (2, -4)

$$m = \frac{-4-5}{2-0} = \frac{-9}{2}$$

$$y = -\frac{9}{2}x + 5$$

9) through (4, 2) and (2, -3)

$$m = \frac{-3-2}{2-4} = \frac{-5}{-2} = \frac{5}{2}$$

$$2 = \frac{5}{2}(4) + b$$

$$2 = 10 + b$$

$$-8 = b$$

$$y = \frac{5}{2}x - 8$$

10) through: (2, 3), parallel to $y = 3x - 1$

$$m = 3$$

$$3 = 3(2) + b$$

$$3 = 6 + b$$

$$-3 = b$$

$$y = 3x - 3$$

11) through: (-5, 3), perpendicular to $y = x - 6$

$$1 \rightarrow -1 = m$$

$$3 = -1(-5) + b$$

$$3 = 5 + b$$

$$-2 = b$$

$$y = -x - 2$$

Directions: Determine which lines, if any, are parallel or perpendicular.

12) Line A: $5x + y = 4 \rightarrow y = -5x + 4; m = -5$

Line B: $y = 5x - 8$

Line C: $x + 5y = 10 \rightarrow m = 5$

$$5y = -x + 10$$

$$y = -\frac{1}{5}x + 2$$

$$m = -\frac{1}{5}$$

B is perp. to C

Directions: Use the data in the table to answer the questions. ROUND TO THE NEAREST TENTH.

13)

X	-10	-6	-3	0	2
Y	58	47	43	37	30

a) Find the line of best fit.

$$y = -2.2x + 35.5$$

b) Approximate the value of y when $x = 25$

$$y = -2.2(25) + 35.5$$

$$y = -19.5$$

14)

X	0	14	28	30	52
Y	45	40	32	31	26

a) Find the line of best fit.

$$y = -0.4x + 44.3$$

b) Find the zero of the function.

$$0 = -0.4x + 44.3$$

$$-44.3 = -0.4x$$

$$-44.3 = -0.4x$$

$$110.75 = x$$

Unit 6 Application and Extension

15) Mr. Brust decides to start a company in hopes of showing Mr. Kelly how easy it is to make money. He decides to sell his vintage 1980s Go-Bots. He had to borrow \$4 to start his company from Mr. Sullivan. After 3 months he has made \$5.

a) What's Mr. Brust's slope (rate of change) for this situation?

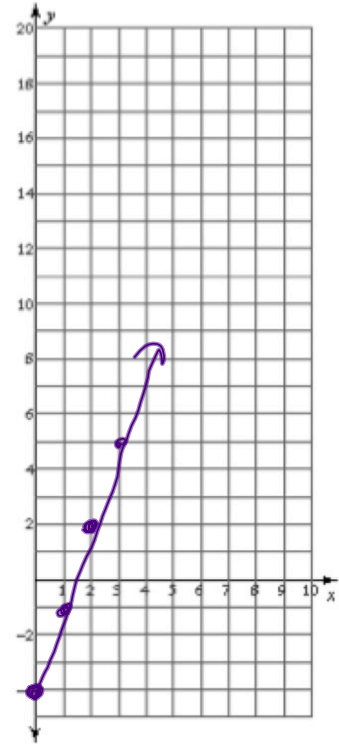
$$\frac{5 - (-4)}{3 - 0} = \frac{9}{3} = \boxed{\$3 \text{ per month}}$$

b) What's Mr. Brust's y-intercept (initial value) for this situation?

$$\boxed{-\$4}$$

c) Write an equation of the line for the given situation. Graph the line.

$$y = 3x - 4$$



d) How much money would Mr. Kelly have after 14 months?

$$y = 3(14) - 4$$

$$\boxed{\$38}$$

16) Mr. Brust needs to make some side cash to pay for some new Star Wars figurines that "he just has to have", so he does some tutoring. After 4 hours of tutoring he has \$22. The next week he checks and after 9 hours of tutoring he has \$62.

a) Write an equation that models how much money Mr. Brust has as a function of how many hours he's worked.

$$(4, 22) \quad (9, 62)$$

$$\frac{62 - 22}{9 - 4} = \frac{40}{5} = 8 = m$$

$$22 = 4(8) + b$$

$$22 = 32 + b$$

$$-10 = b$$

$$\boxed{y = 8x - 10}$$

b) How much money does Mr. Brust have after tutoring for 30 hours?

$$y = 8(30) - 10$$

$$= 240 - 10$$

$$\boxed{\$230}$$

17) The Algebras collected some data about the Chapter 4 Test results. They compared how long it took for a student to complete Chapter 4 to the score they received on their first test.

Days, x	1.5	2	3	5	6	9
Score, y	99	93	86	83	73	68

- a) Find the equation that models the best-fitting line for the above data. Round values to the nearest tenth.

$$y = -4.0x + 101.2$$

- b) Approximate the score of someone who spent 7 days working on Chapter 4.

$$y = -4(7) + 101.2$$

$$= 73.2\%$$

- c) Approximate the score of someone who spent 4 days working on Chapter 4.

$$y = -4(4) + 101.2$$

$$= 85.2\%$$

- d) Find the zero of the equation that models the best-fitting line. What does it represent? Does it make sense? Why or why not?

$$0 = -4x + 101.2$$

$$-101.2 = -4x$$

$$25.3 = x$$

How MANY DAYS
SOMEONE WOULD
BE ON THE UNIT AND
SCORE A 0%,