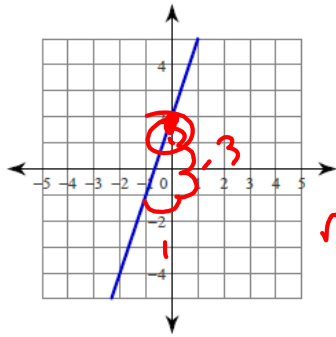


Unit 6 Review

1)



$$y = mx + b$$

$$y = 3x + 2$$

$$m = \frac{-3}{-1} = 3$$

Write the slope-intercept form of the equation of the line through the given point with the given slope.

2) through: $(-1, 5)$, slope $= -1$

$$y = mx + b$$

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

$$5 = 1 + b$$

$$4 = b$$

$$y = -x + 4$$

3) $f(0)=2, f(2)=6$ $(0, 2) (2, 6)$

$$\frac{6-2}{2-0} = \frac{4}{2} = 2$$

$$m = 2$$

$$y = mx + b$$

$$6 = 2(2) + b$$

$$6 = 4 + b$$

$$-1 = -4$$

$$2 = b$$

$$y = 2x + 2$$

Write the slope-intercept form of the equation of the line through the given points.

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

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

$$y = mx + b$$

$$-2 = -1(-4) + b$$

$$-2 = 4 + b$$

$$-4 = 4 + b$$

$$-6 = b$$

$$y = -x - 6$$

5) Determine which lines, if any, are parallel or perpendicular.

Line a: $y = 7x + 1$ $m = 7$

Line b: $14x - 2y = 10$

Line c: $x + 5y = 15$

$$\frac{-2y}{-2} = \frac{14x + 10}{-2}$$

$$y = -7x + 5$$

$$\frac{5y}{5} = \frac{-x + 15}{5}$$

$$y = -\frac{1}{5}x + 3$$

Write the slope-intercept form of the equation of the line described.

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

$$y = mx + b$$

$$-1 = (-2)(3) + b$$

$$-1 = -6 + b$$

$$+6 \quad +6$$

$$5 = b$$

$$y = -2x + 5$$

7) through: $(-1, -3)$, perp. to $y = -\frac{1}{7}x - 1$

$$-3 = -1$$

$$-3 = -\frac{1}{7}$$

$$+7 \quad +7$$

$$4 = b$$

$$y = 7x + 4$$

8) Find the equation of the best-fitting line for the following data. Round the values to the nearest tenth.

x	-13	-7	-4	-1	0	4
y	4	8	10	15	15	21

$$a = .99$$

$$b = 15.64$$

$$y = 1.0x + 15.6$$

APPLICATIONS

9) Mr. Kelly decides to start another company.. He decides to sell his vintage 1980s GI Joe Toys. After two months he still owes \$1 for his investments, but after 7 months he has made \$9.

$$(2, -1) (7, 9)$$

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

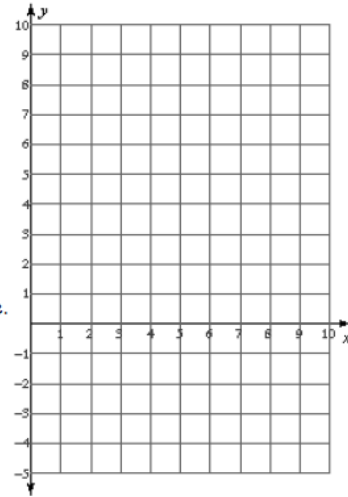
$$\frac{9 - (-1)}{7 - 2} = \frac{10}{5} = 2$$

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

$$\begin{aligned} 9 &= 2(7) + b \\ 9 &= 14 + b \quad -5 = b \end{aligned}$$

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

$$y = 2x - 5$$



10) 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	4	5	5	7	8	9
Score, y	100	95	89	80	71	64

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

$$y = -7.1x + 127.8$$

b) Approximate the score of someone who spent 6 days working on Chapter 4.

$$85.2\%$$

c) Approximate the score of someone who spent 15 days working on Chapter 4.

$$21.3\%$$

11) Mr. Kelly made some investments last year. After 2 months the investment was worth \$100, but after 4 months it was only worth \$50.

$$(2, 100) (4, 50)$$

a) Write an equation that models how much money Mr. Kelly's investment is worth as a function of how many months have passed.

$$\frac{50 - 100}{4 - 2} = \frac{-50}{2} = -25$$

$$\begin{aligned} 100 &= -25(2) + b \\ 100 &= -50 + b \\ 150 &= b \end{aligned}$$

$$y = -25x + 150$$

b) How much money did Mr. Kelly originally invest?

$$\$150$$