Algebra 1-2

Name Key

Unit 5A Study Guide

Date _____ Period ____

Determine if the table represents a linear function. If so, state the slope.

1) X -4 -3 -2 -1 0 (+1 each)

Y 16 9 4 1 0 (−7, −5, −3, −1)

Not linear, $\frac{\Delta y}{\Delta x}$ is not the same

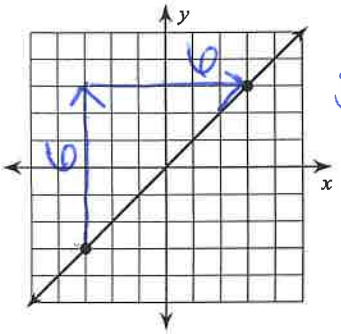
2) X 1 2 3 4 5 (+1 each)

Y -3 0 3 6 9 (+3 each)

Yes linear, slope = $\frac{3}{1}$

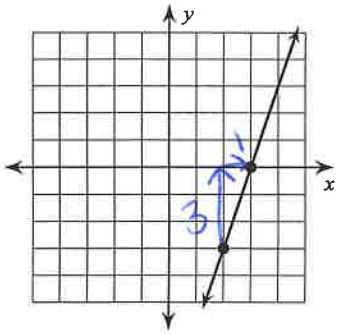
Identify the slope.

3)



slope = $\frac{6}{6}$ = 1

4)



slope = $\frac{3}{1}$ = 3

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

y = mx + b

slope = $\frac{2}{5}$

6) $y = 5x + 2$

y = mx + b

slope = 5

7) $(x_1, y_1), (x_2, y_2)$ $(-1, -12), (-11, 10)$

$\frac{y_2 - y_1}{x_2 - x_1} = \frac{10 + 12}{-11 + 1} = \frac{22}{-10} = \frac{-11}{5}$

8) $(x_1, y_1), (x_2, y_2)$ $(-6, 0), (-8, -13)$

$\frac{-13 - 0}{-8 + 6} = \frac{-13}{-2} = \frac{13}{2}$

9) $(1, 15), (8, 9)$ $x_1\ y_1\ x_2\ y_2$

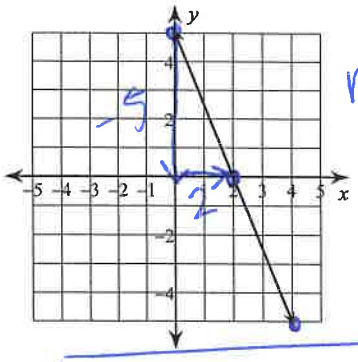
$\frac{9-15}{8-1} = \frac{-6}{7}$

10) $(-6, 7), (12, -19)$ $x_1\ y_1\ x_2\ y_2$

$\frac{-19-7}{12+6} = \frac{-26}{18} = \frac{-13}{9}$

Write the slope-intercept form of the equation from the given information.

11)

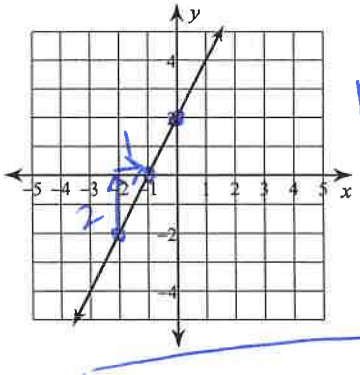


$m = \frac{-5}{2}$

$b = (0, 5)$

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

12)



$m = \frac{2}{1}$

$b = (0, 2)$

$y = 2x + 2$

13) Slope = 9, y-intercept = –4

$y = 9x - 4$

14) Slope = $-\frac{7}{4}$, y-intercept = 4

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

15) through: $(3, 4)$ $x_1\ y_1$, slope = 1 m

$y - y_1 = m(x - x_1)$

$y - 4 = 1(x - 3)$

$y - 4 = x - 3$

$+4 \quad +4$

$y = x + 1$

16) through: $(-4, -3)$ $x_1\ y_1$, slope = $\frac{5}{4}$ m

$y - y_1 = m(x - x_1)$

$y + 3 = \frac{5}{4}(x + 4)$

$y + 3 = \frac{5}{4}x + 5$

$-3 \quad -3$

$y = \frac{5}{4}x + 2$

17)

Days Painting	2	3	5
Gal. of Paint	56	44	20

$x_1\ y_1$ $(2, 56)$ $x_2\ y_2$ $(3, 44)$

Slope $\frac{44-56}{3-2} = \frac{-12}{1}$ m

$y - y_1 = m(x - x_1)$

$y - 56 = -12(x - 2)$

$y - 56 = -12x + 24$

$+56 \quad +56$

$y = -12x + 80$

18) through: $(3, -5)$ and $(-3, 1)$

$x_1\ y_1$ $x_2\ y_2$

Slope $\frac{1+5}{-3-3} = \frac{6}{-6} = -1$ m

$y - y_1 = m(x - x_1)$

$y + 5 = -1(x - 3)$

$y + 5 = -x + 3$

$-5 \quad -5$

$y = -x - 2$

19) A bucket of water currently holding 10 gallons of water is leaking at a rate of 2 gallons per hour. subtraction

a) Write an equation to represend gallons (g) as a function of hours (h).

$g(h) = 10 - 2h$

b) Identify the slope and y-intercept and give the meaining of each.

Slope: -2, number of gallons that drop every hour

Y-intercept: 10, amount of gallons originally in bucket

20) A car that currently has .80 liters of gas gets filled up at a rate of 1.2 liters per minute. addition

a) Write an equation to represend liters (L) as a function of minutes (m).

$L(m) = 1.2m + .80$

b) Identify the slope and y-intercept and give the meaining of each.

Slope: 1.2, number of Liters added every minute

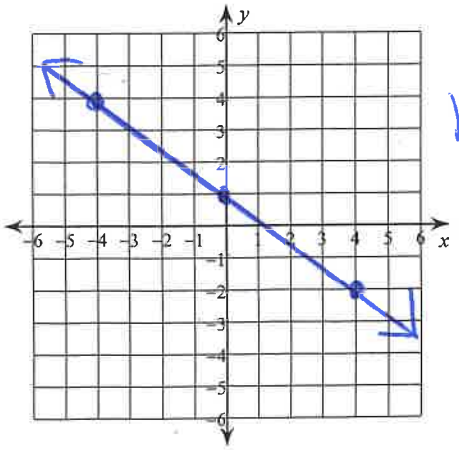
Y-intercept: .80, amount of liters originally in gas tank

Sketch the graph of each line.

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

$m = \frac{-3}{4}$ ↓ →

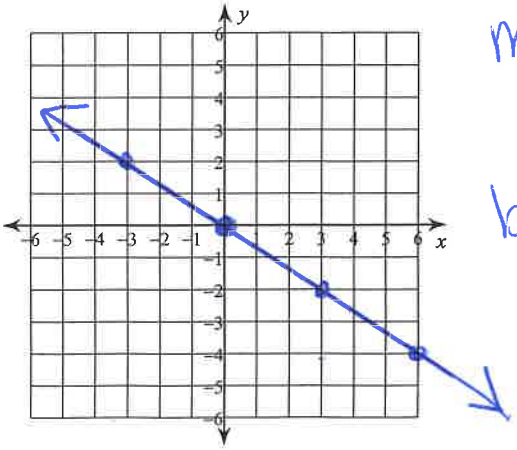
$b = (0, 1)$



22) $y = -\frac{2}{3}x$

$m = \frac{-2}{3}$ ↓ →

$b = (0, 0)$

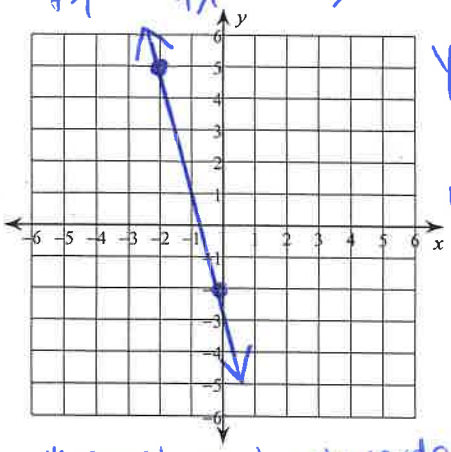


23) $7x = -2y - 4$

$+4 \quad +4$

$\frac{-2}{2}y = \frac{7x+4}{-2} \quad \frac{}{-2}$

$y = -\frac{7}{2}x - 2$



$m = \frac{-7}{2}$ ↓ →

$b = (0, -2)$

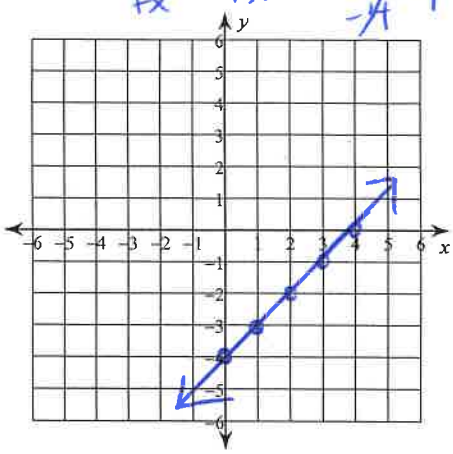
* must go backwards for second point

24) $4 + y - x = 0$

$+x \quad +x$

$-4 \quad -4$

$y = x - 4$



$m = \frac{1}{1}$ ↑ →

$b = (0, -4)$

Are the following equations direct variation? If so, what is K?

$y = kx$

25) $-3x = 4y$

$\frac{}{4} \quad \frac{}{4}$

$\frac{-3}{4}x = y$

yes, $k = -3/4$

26) $y + 2 = 3x + 2$

$-2 \quad -2$

$y = 3x$

yes, $k = 3$

27) Suppose y varies directly with x when y = -24 and x = 3. Write an equation and find y if x = 7.

k

$y = kx$

$k = \frac{y}{x}$

$k = \frac{-24}{3}$

$k = -8$

$y = -8x$

$y = -8(7)$

$y = -56$

28) Suppose y varies directly with x when y = 11 and x = 55. Write an equation and find x if y = 3.

k

$y = kx$

$k = \frac{y}{x}$

$k = \frac{11}{55}$

$k = \frac{1}{5}$

$y = \frac{1}{5}x$

$5 \cdot 3 = \frac{1}{5}x \cdot 5$

$15 = x$