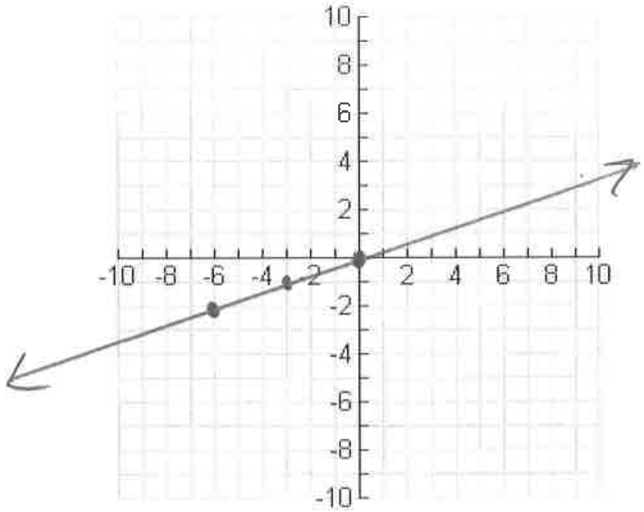
Key

Math 1 Name ____________

2-5 Practice 2 Date ______

Graph each of the following lines by first giving the point and the slope. Then rewrite the equation in slope-intercept form.

1. $y + 2 = \frac{1}{3}(x + 6)$



Point $(-6, -2)$

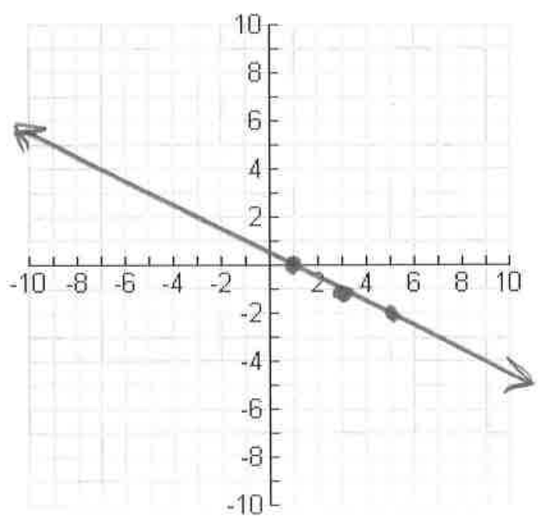
Slope $1/3$

Slope-Intercept Form $y = \frac{1}{3}x + 2$

$y = \frac{1}{3}x + 2 + 2$

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

2. $y + 1 = -\frac{1}{2}(x - 3)$



Point $(3, -1)$

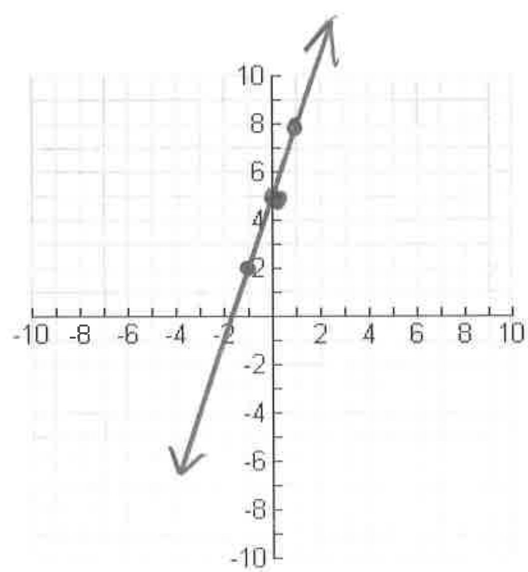
Slope $-1/2$

Slope-Intercept Form $y = -0.5x + 0.5$

$y = -\frac{1}{2}x + \frac{3}{2} - 1$

$y = -0.5x + 0.5$

3. $y - 5 = 3x \ +0$



Point $(0, 5)$

Slope 3

Slope-Intercept Form $y = 3x + 5$

4. Given a slope of -2 and the coordinate (3 , -4) write the equation of the line in point-slope form.

$y+4=-2(x-3)$

5. Write the equation of a line through (-1 , 5) and (-2 , 8) in point-slope form. (Use (-1 , 5) in your formula.)

$m=\frac{8-5}{-2+1}=\frac{3}{-1}=-3$

$\boxed{y-5=-3(x+1)}$

6. Write $g(-5) = 2$ as an ordered pair.

$(-5,2)$

7. Evaluate the function $j(x) = \frac{-20}{x} - 6$ for $j(-5) =$ $\frac{-20}{-5} = \boxed{4}$

8. Evaluate the function $t(x) = 3x^2 - x + 3$ for $t(-4) =$ $3(-4)^2-(-4)+3$

$=3(16)+4+3$

$=\boxed{55}$

9. Evaluate the function $k(x) = 6x + 5$ when $k(x) = 23$

$23=6x+5$

$18=6x$

$\boxed{3=x}$

10. Evaluate the function $n(x) = x^2 - 5$ when $n(x) = -1$

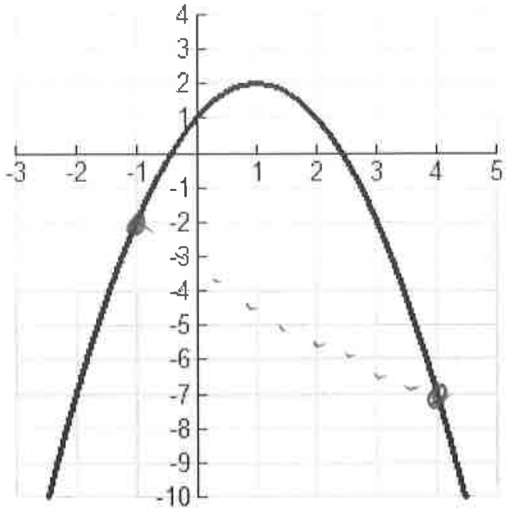
$-1=x^2-5$

$4=x^2$

Square root each side

$\boxed{x=\pm 2}$

11. Given the graph of $f(x)$ to the right.



a. Find $f(-1) = \boxed{-2}$

b. Find $f(x) = 2$

$\boxed{x=1}$

c. Find $f(x) = -7$

$\boxed{x=-2 \text{ or } x=4}$

d. Find the average rate of change from x = -1, to 4.

$(-1,-2)$ to $(4,-7)$

$$m = \frac{-7 - -2}{4 - -1} = \frac{-5}{5} = \boxed{-1}$$

12. Find the equation in slope-intercept form for the coordinates (3, 4) and (7, -12). Then graph it.

$y = mx + b$

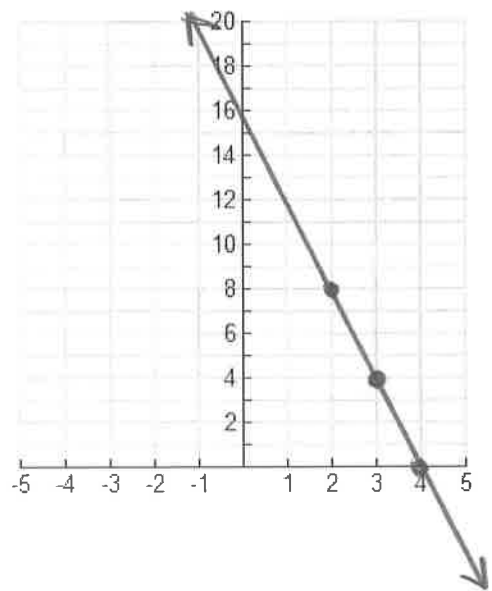
$$M = \frac{4 - -12}{3-7} = \frac{16}{-4} = -4$$

$\boxed{y = -4x + 16}$

$\overset{y}{4} = -4(\overset{x}{3}) + b$

$4 = -12 + b$

$16 = b$



13. Solve the following: $\left(\frac{2}{3}x + 5 - (x-7) = \frac{3}{4}\right) \cdot 12$

$8x + 60 - 12(x-7) = 9$

$8x + 60 - 12x + 84 = 9$

$-4x + 144 = 9$

$-4x = -135$

$\boxed{x = 33.75}$

14. The football team decides to start selling jerseys to make more money to get new equipment for the weight room. The seniors did a survey and found that if they charge \$30 a jersey, 175 students would buy one. If the price was \$22 a jersey, then 287 students would buy one.

a. What is the independent variable? What is the dependent variable?

Independent: price Dependent: # of jerseys sold

b. What is the rate of change in jerseys sold as the price per jersey increases from \$22 to \$30?

$$\frac{287-175}{22-30} = \frac{112}{-8} = -14$$

The rate of change is −14 jerseys per dollar increase (include units)

c. Assume that sales are a linear function of price. Use the rate of change you found in Part *a* to reason about how many jerseys would be purchased for a price of \$0.

−8	30	175	112
−8	22	287	112
−8	14	399	
−6	6	511	
	0	595	84

\$6 × 14 jerseys per dollar = 84

$\boxed{595 \text{ jerseys}}$

d. Use your answers to Parts *a* and *b* to write a rule for calculating expected sales $j(x)$ for any price x in dollars.

$$\boxed{j(x) = 595 - 14x}$$

e. Use your rule to estimate the expected number of jerseys sold if the price was set at \$25.

$$j(25) = 595 - 14(25)$$
$$= \boxed{245 \text{ jerseys}}$$

f. What price should be charged if they want to sell 427 jerseys?

$$427 = 595 - 14x$$
$$-595 \quad -595$$
$$-168 = -14x$$

$x = \boxed{\$12}$

g. What is the practical domain? What is the practical range?

Domain (x):
Any number ≥ 0

Range (y):
Whole #s between 0 + 595