Algebra 2

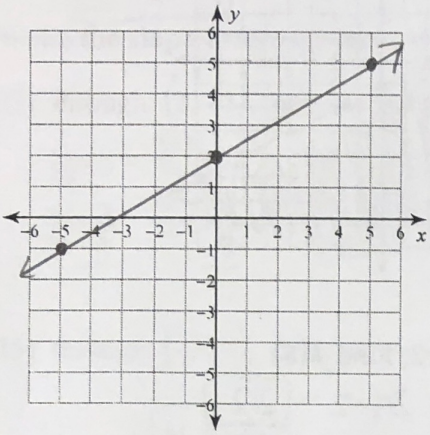
Name Key

Review Part 1

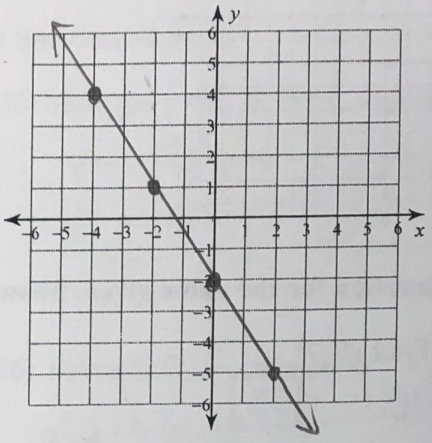
Date_____ Period____

Sketch the graph of each line.

1) $y = \frac{3}{5}x + 2$

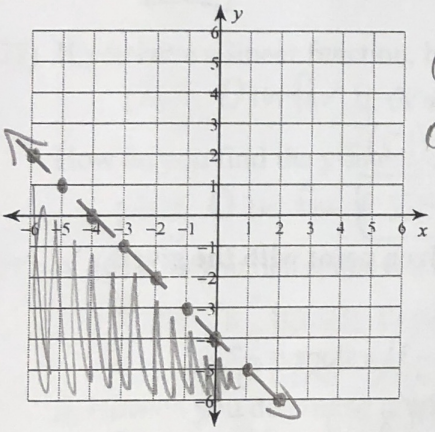


2) $y = -\frac{3}{2}x - 2$



Sketch the graph of each linear inequality.

3) $y < -x - 4$



(0,0)

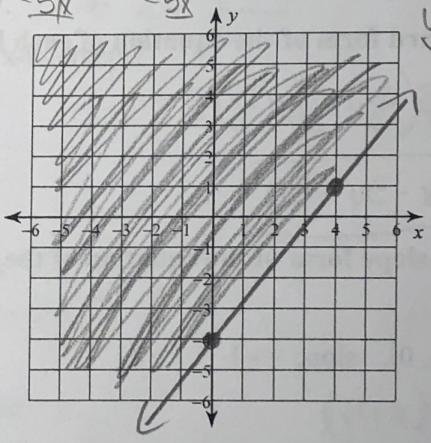
$0 < -4$

4) $5x - 4y \le 16$

$-5x \quad -5x$

$\frac{-4y}{-4} < \frac{-5x+16}{-4 \quad -4}$

$y \ge \frac{5}{4}x - 4$

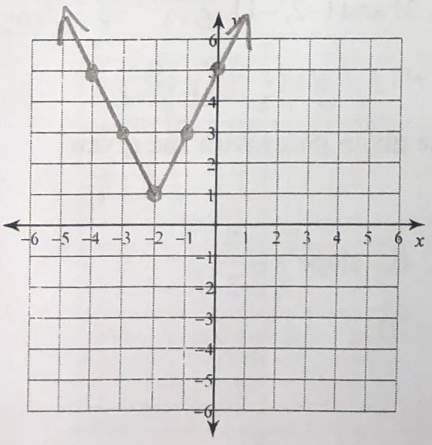


(0,0)

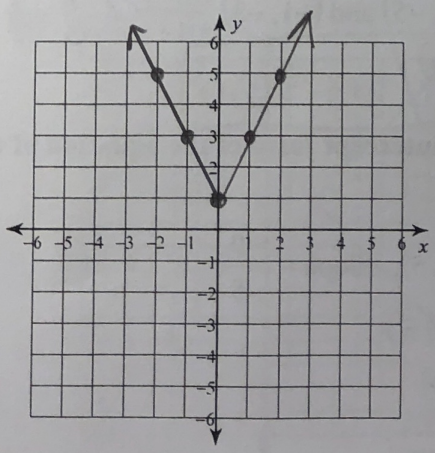
$0 \le 16$

Graph each equation.

5) $y = 2|x+2| + 1$

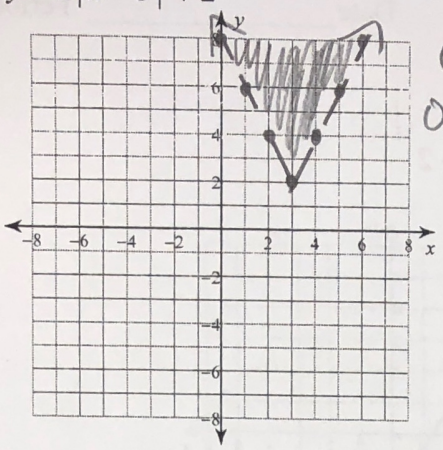


6) $y = 2|x| + 1$



Graph each inequality.

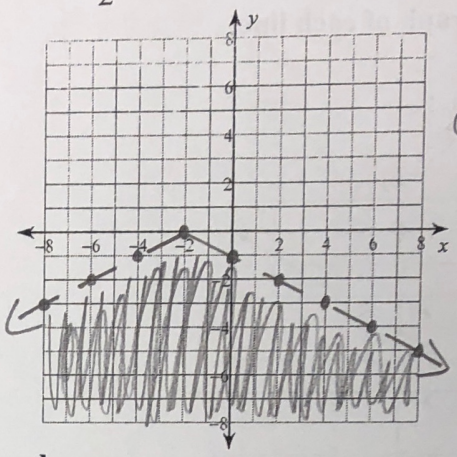
7) $y > 2|x-3| + 2$



(0,0)

0>8

8) $y < -\frac{1}{2} \cdot |x+2|$



(0,0)

0<-1

Evaluate each function for the value given. Show all work.

9) $g(t) = t^2 + 4$; Find $g(-7)$

$(-7)^2 + 4 = 49 + 4 = \boxed{53}$

10) $f(x) = 3x - 2$; Find $f(8)$

$3(8) - 2 = 24 - 2 = \boxed{22}$

11) $f(n) = n^2 - 3$; Find $f(6)$

$6^2 - 3 = 36 - 3 = \boxed{33}$

12) $h(x) = x^3 - 3x$; Find $h(-2)$

$(-2)^3 - 3(-2) = -8 + 6 = \boxed{-2}$

Write the standard form of the equation of each line.

13) $\frac{5}{3}x - \frac{10}{3} = y$

$3\left(\frac{5}{3}x - y\right) = \left(\frac{10}{3}\right)3$

$\boxed{5x - 3y = 30}$

14) $12 = 3y - 9x$

$-1(-9x + 3y) = (12)-1$

$\boxed{9x - 3y = -12}$

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

15) through: $(-5, 0)$, slope $= -1$

$y - 0 = -1(x+5)$

16) through: $(1, -3)$, slope $= -7$

$y + 3 = -7(x-1)$

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

17) through: $(-4, -5)$ and $(-1, -3)$ $\frac{-5+3}{-4+1} = \frac{-2}{-3} = \frac{2}{3}$

$\boxed{y+5 = \frac{2}{3}(x+4) \,/\, y+3 = \frac{2}{3}(x+1)}$

18) through: $(-5, 3)$ and $(-2, -1)$ $\frac{3+1}{-5+2} = \frac{4}{-3} = \frac{-4}{3}$

$\boxed{y-3 = \frac{-4}{3}(x+5) \,/\, y+1 = \frac{-4}{3}(x+2)}$

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

19) through: $(-5, 5)$, slope $= -\frac{9}{5}$

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

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

$+5 \qquad +5$

$\boxed{y = \frac{-9}{5}x - 4}$

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

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

$y - 4 = \frac{-7}{3}x - 7$

$+4 \qquad +4$

$\boxed{y = \frac{-7}{3}x - 3}$

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

21) through: $(-2, 2)$ and $(4, -1)$ $\frac{2+1}{-2-4} = \frac{3}{-6} = \frac{-1}{2}$

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

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

$+2 \quad +2$

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

22) through: $(-5, -3)$ and $(4, 0)$ $\frac{-3-0}{-5-4} = \frac{-3}{-9} = \frac{1}{3}$

$y-0=\frac{1}{3}(x-4)$

$\boxed{y=\frac{1}{3}x-\frac{4}{3}}$

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

23) through: $(2, -3)$, parallel to $5x + 2y = 2$ $m=\frac{-5}{2}$

$y+3=\frac{-5}{2}(x-2)$

$y+3=\frac{-5}{2}x+5$

$-3 \quad -3$

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

24) through: $(-4, -2)$, perp. to $y = 4x + 5$

$y+2=\frac{-1}{4}(x+4)$

$y+2=\frac{-1}{4}x-1$

$-2 \quad -2$

$\boxed{y=\frac{-1}{4}x-3}$

25) through: $(-5, 0)$, perp. to $y = -3$

$\boxed{x=-5}$

26) through: $(3, 3)$, parallel to $y = \frac{8}{3}x - 3$

$y-3=\frac{8}{3}(x-3)$

$y-3=\frac{8}{3}x-8$

$+3 \quad +3$

$\boxed{y=\frac{8}{3}x-5}$

27) If you have a linear function, how do you find the x-intercept?

plug 0 in for y and solve.

How do you find the y-intercept?

plug 0 in for x and solve

28) A. How do you determine if a relation is a function?

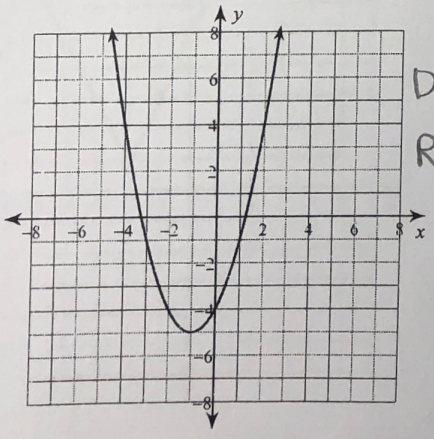
- If no "x" values repeat it is a function.
- Vertical line test

B. How do you determine if a function is one-to-one?

- If every "x" and "y" value is unique, it is one-to-one

State the Domain and Range

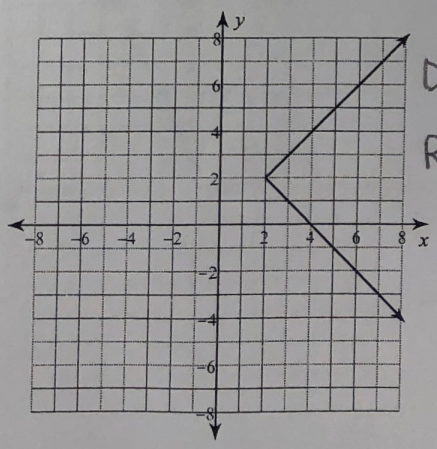
29)



D: $(-\infty, \infty)$

R: $[-5, \infty)$

30)



D: $[2, \infty)$

R: $(-\infty, \infty)$