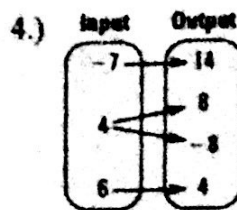
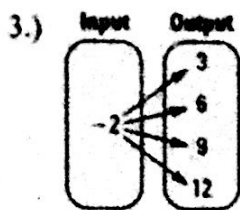
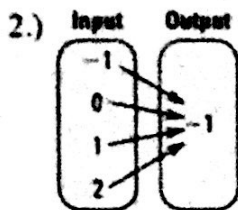
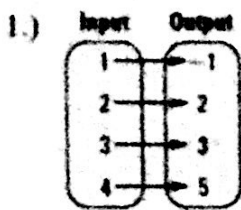


# Chapter 2 Review Worksheet

Name: KEY

A.) Tell whether the relation is a function. B.) If it is a function, identify its domain and range. If it is not a function explain why it is not.



A.) function? **YES**    A.) function? **YES**    A.) function? **NO**    A.) function? **NO**

B.) D: {1, 2, 3, 4}    B.) D: {-1, 0, 1, 2}    B.) There are multiple outputs for the input of -2.    B.) The input of 4 has 2 different outputs.

R: {-1, 2, 3, 5}    R: {-1}

Tell whether the lines are *parallel*, *perpendicular*, or *neither*. You must have work to back your answer.

5.) Line 1: through (5, -4) and (-4, 2)  
Line 2: through (-5, -4) and (-2, -2)

6.) Line 1: through (0, -4) and (-2, 2)  
Line 2: through (4, -3) and (5, -6)

Line 1:  $m = \frac{2 - (-4)}{-4 - 5} = \frac{6}{-9} = \boxed{-\frac{2}{3}}$

Line 1:  $m = \frac{2 - (-4)}{-2 - 0} = \frac{6}{-2} = \boxed{-3}$

Line 2:  $m = \frac{-2 - (-4)}{-2 - (-5)} = \frac{2}{3}$

Line 2:  $m = \frac{-3 - (-6)}{4 - 5} = \frac{-3}{-1} = \boxed{-3}$

**neither**

**parallel**

Graph the equation using any method. Make it clear how you graphed the equation (show your x/y chart, identify your slope/y-intercept, or identify your x/y intercepts).

7.)  $x + 2y = -6$

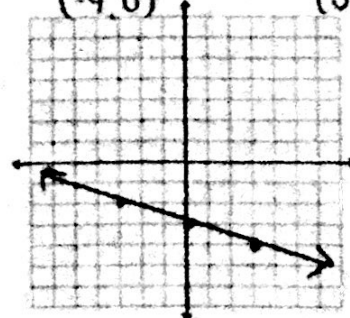
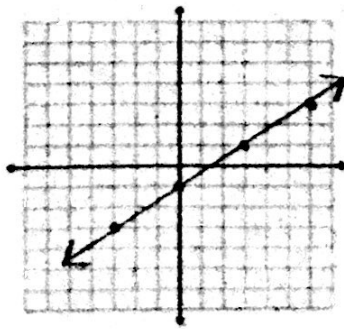
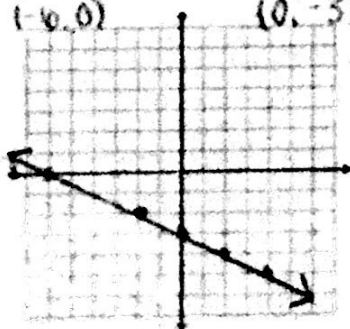
8.)  $\frac{2}{3}x - 1 = y$

9.)  $-2x = 6y + 18$

x-int:  $x + 2(0) = -6 \Rightarrow x = -6 \Rightarrow (-6, 0)$   
y-int:  $0 + 2y = -6 \Rightarrow y = -3 \Rightarrow (0, -3)$

y-int: -1  
slope:  $\frac{2}{3}$

x-int:  $-2x = 6(0) + 18 \Rightarrow -2x = 18 \Rightarrow x = -9 \Rightarrow (-9, 0)$   
y-int:  $-2(0) = 6y + 18 \Rightarrow -6y = 18 \Rightarrow y = -3 \Rightarrow (0, -3)$



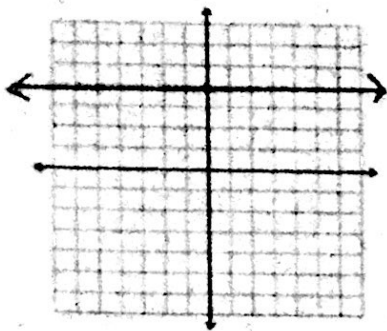
$x + 2y = -6$   
 $2y = -x - 6$   
 $y = -\frac{1}{2}x - 3$

$-2x = 6y + 18$   
 $-2x - 18 = 6y$   
 $-\frac{2}{6}x - \frac{18}{6} = y$   
 $y = -\frac{1}{3}x - 3$

$$10.) -3y + 12 = 0$$

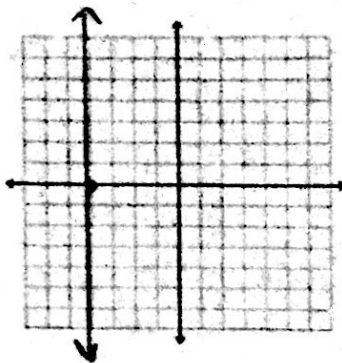
$$-3y = -12$$

$$y = 4$$



$$11.) \frac{-8}{2} = \frac{2x}{2}$$

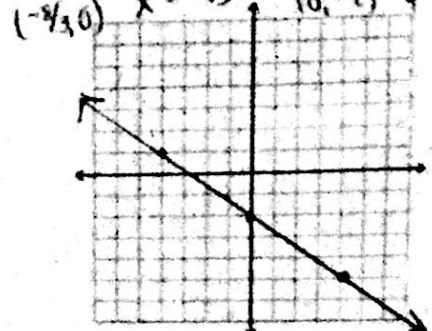
$$-4 = x$$



$$12.) 3x + 4y = -8$$

*x-int: 3x + 4(0) = -8*  
 $3x = -8$   
 $x = -8/3$

*y-int: 3(0) + 4y = -8*  
 $4y = -8$   
 $y = -2$



Write an equation in slope-intercept form AND standard form that passes through the given point and satisfies the given criteria, or that passes through the given points. Use integer values for A, B, and C in standard form.

$$13.) (3, 6), m = -\frac{1}{4}$$

$$y - 6 = -\frac{1}{4}(x - 3)$$

$$y - 6 = -\frac{1}{4}x + \frac{3}{4}$$

Slope-Intercept Form:  $y = -\frac{1}{4}x + \frac{27}{4}$

$$y = -\frac{1}{4}x + \frac{27}{4}$$

$$4\left(\frac{1}{4}x + y\right) = \left(\frac{27}{4}\right)4$$

Standard Form:  $x + 4y = 27$

$$15.) (7, -2), m = 0$$

$$y - (-2) = 0(x - 7)$$

$$y + 2 = 0$$

$$y = -2$$

ONLY FORM

$$16.) (-1, -3), (2, 7)$$

$$m = \frac{7 - (-3)}{2 - (-1)} = \frac{10}{3}$$

$$y - 7 = \frac{10}{3}(x - 2)$$

$$y - 7 = \frac{10}{3}x - \frac{20}{3}$$

Slope-Intercept Form:  $y = \frac{10}{3}x + \frac{1}{3}$

$$y = \frac{10}{3}x + \frac{1}{3}$$

$$3\left(-\frac{1}{3}\right) = \left(\frac{10}{3}x - y\right)3$$

$$-1 = 10x - 3y$$

Standard Form:  $10x - 3y = -1$

$$14.) (-2, 3); \text{parallel to } -8x + 2y = -6$$

same slope

$$-8x + 2y = -6$$

$$2y = 8x - 6$$

$$y = 4x - 3$$

$$m = 4$$

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

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

$$y - 3 = 4x + 8$$

Slope-Intercept Form:  $y = 4x + 11$

$$y = 4x + 11$$

$$-11 = 4x - y$$

Standard Form:  $4x - y = -11$

$$17.) (4, -2); \text{perpendicular to } y = \frac{2}{3}x - 8$$

opposite reciprocal

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

$$y - (-2) = -\frac{3}{2}(x - 4)$$

$$y + 2 = -\frac{3}{2}x + 6$$

Slope-Intercept Form:  $y = -\frac{3}{2}x + 4$

$$y = -\frac{3}{2}x + 4$$

$$2\left(\frac{3}{2}x + y\right) = (4)2$$

Standard Form:  $3x + 2y = 8$

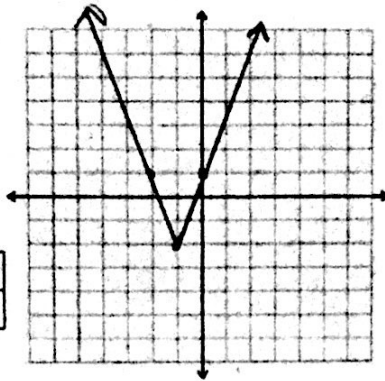
Identify the functions vertex and whether it opens up or down. Then use the table to graph the function. Compare the graph with the graph of  $y = |x|$ .

18.)  $y = 3|x + 1| - 2$

vertex:  $(-1, -2)$

opens: up

x	-3	-2	-1	0	1
y	4	1	-2	1	4



comparison:

- vertical stretch
- translation left 1
- translation down 2

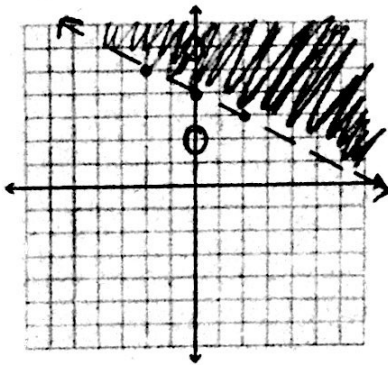
Graph the inequality in a coordinate plane.

20.)  $x + 2y > 8$

$x + 2y > 8$

$2y > -x + 8$

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



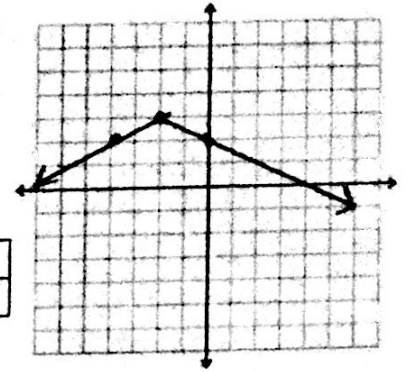
Test:  
 $(0, 2)$   $0 + 2(2) > 8$   
 $4 > 8$   
 No  
 $(0, 6)$   $0 + 2(6) > 8$   
 $12 > 8$   
 Yes

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

vertex:  $(-2, 3)$

opens: down

x	-6	-4	-2	0	2
y	1	2	3	2	1

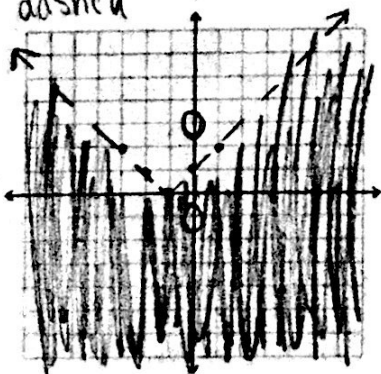


comparison:

- reflection over x-axis
- vertical shrink
- translation left 2
- translation up 3

22.)  $y < |x + 1|$

dashed

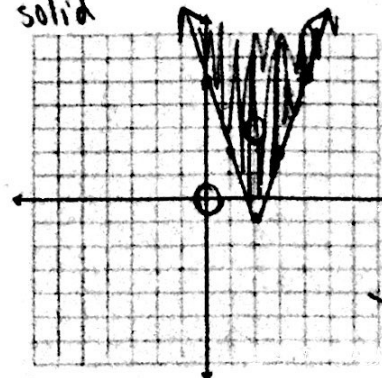


• Translation left 1  
 vertex:  $(-1, 0)$   
 opens: up

Test:  
 $(0, 3)$   $3 < |0 + 1|$   
 $3 < 1$   
 No  
 $(0, -1)$   $-1 < |0 + 1|$   
 $-1 < 1$   
 Yes

23.)  $y \geq 3|x - 2| - 1$

solid



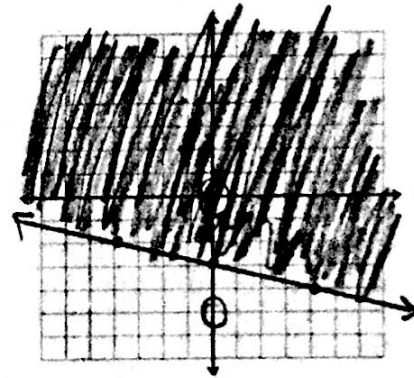
• Translation right 2  
 • Translation down 1  
 • Vertical stretch  
 vertex:  $(2, -1)$   
 opens: up

x	y
1	2
2	-1
3	2

$-x - 4y \leq 12$

$-4y \leq x + 12$

$y \geq -\frac{1}{4}x - 3$   
solid



Test:  
 $(0, 0)$   $0 \leq 12$   
 Yes  
 $(0, -5)$   $0 - 4(-5) \leq 12$   
 $20 \leq 12$   
 No