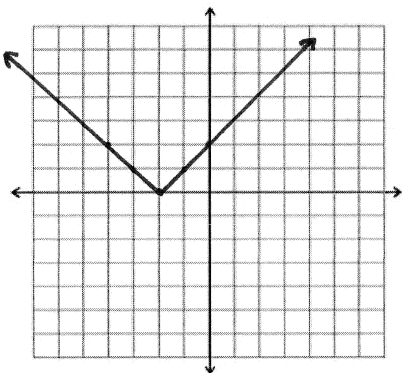


Lesson 2.7 Worksheet

Name: Key

Graph the function. Identify the graph features. Compare the graph with the graph of $y = |x|$.

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



vertex: $(-2, 0)$

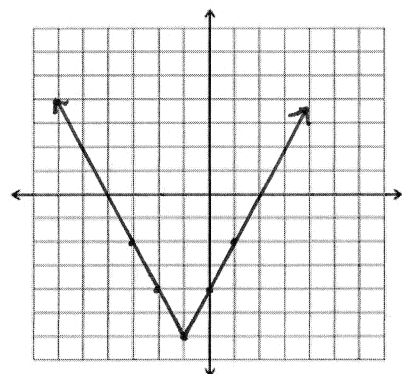
graph opens: up

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

comparison(s):

• shift left, 2

4.) $f(x) = 2|x + 1| - 6$



vertex: $(-1, -6)$

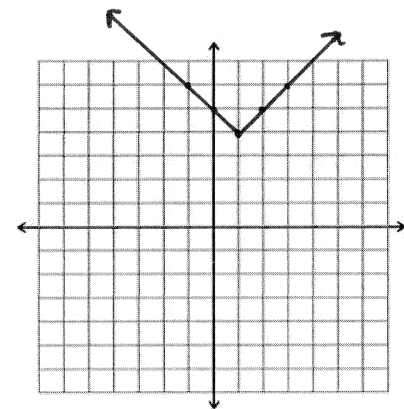
graph opens: up

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

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

range: $[-6, \infty)$

2.) $y = |x - 1| + 4$



vertex: $(1, 4)$

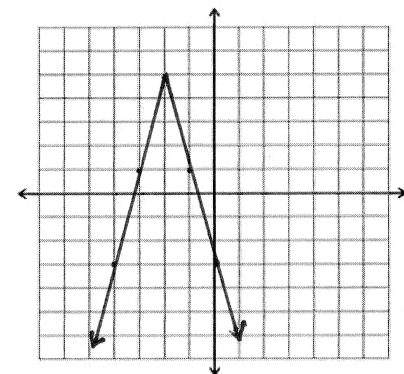
graph opens: up

x	-1	0	1	2	3
y	6	5	4	5	6

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

range: $[4, \infty)$

5.) $f(x) = -4|x + 2| + 5$



vertex: $(-2, 5)$

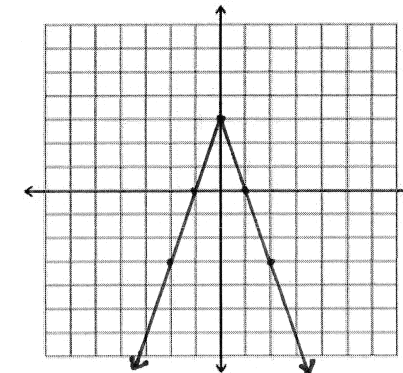
graph opens: down

x	-4	-3	-2	-1	0
y	-3	1	5	1	-3

comparison:

• reflection over x-axis
• vertical stretch
• shift left 2, up 5

3.) $f(x) = -3|x| + 3$



vertex: $(0, 3)$

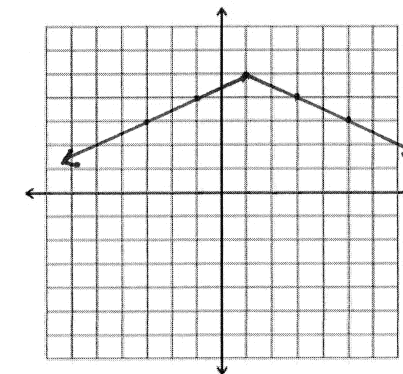
graph opens: down

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

comparison(s):

• reflection over x-axis
• vertical stretch
• shift up 3

6.) $f(x) = -\frac{1}{2}|x - 1| + 5$



vertex: $(1, 5)$

graph opens: down

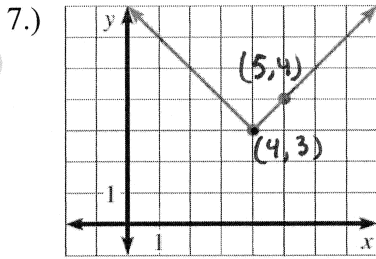
x	-3	-1	1	3	5
y	3	4	5	4	3

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

range: $(-\infty, 5]$

$$y = a|x-h| + k$$

Write an equation of the graph shown.

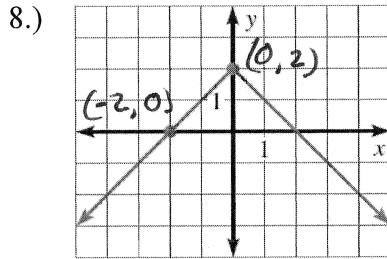


$$4 = a|5-4| + 3$$

$$4 = a + 3$$

$$a = 1$$

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



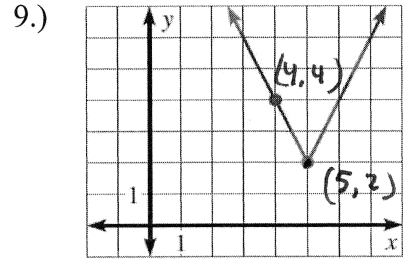
$$0 = a|-2| + 2$$

$$0 = 2a + 2$$

$$-2 = 2a$$

$$a = -1$$

$$y = -|x| + 2$$



$$4 = a|4-5| + 2$$

$$4 = a + 2$$

$$a = 2$$

$$y = 2|x-5| + 2$$

Write an equation of the line, in slope-intercept form, that satisfies the given conditions.

10.) through (4, -1) and (6, -7)

$$m = \frac{-7 - (-1)}{6 - 4} = \frac{-6}{2} = -3$$

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

$$y + 1 = -3x + 12$$

$$y = -3x + 11$$

11.) through (7, 1); parallel to $y = -x + 3$

$$m = -1$$

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

$$y - 1 = -x + 7$$

$$y = -x + 8$$

Find the x- and y-intercepts of the line with the given equation. Write your intercepts as ordered pairs.

12.) $x + 5y = -15$

13.) $2x - y = 10$

14.) $-6x + 8y = -36$

x-int: $(-15, 0)$ y-int: $(0, -3)$ x-int: $(5, 0)$ y-int: $(0, -10)$ x-int: $(6, 0)$ y-int: $(0, -4.5)$

Tell whether the lines are *parallel*, *perpendicular*, or *neither*.

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

Line 2: through (-6, 2) and (0, 4)

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

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

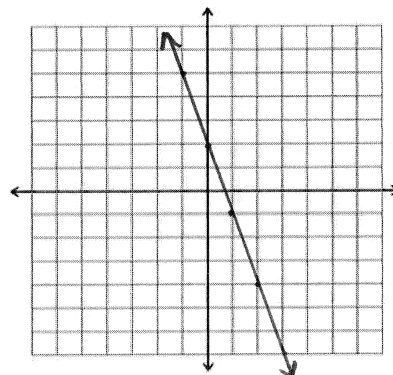
lines are: Parallel

Graph the equation using any method. Be sure to identify the components used to graph (i.e. slope, x- or y-int.)

16.) $-6x - 2y = -4$

$$-2y = 6x - 4$$

$$y = -3x + 2$$



x-int: $(\frac{2}{3}, 0)$

y-int: $(0, 2)$