ALGEBRA RH **HW**

ATTRIBUTES OF A QUADRATIC

1. Graph the quadratic function $y = x^2 + 2x - 2$

Find each:

a. Vertex: _____

b. Maximum or minimum? _____

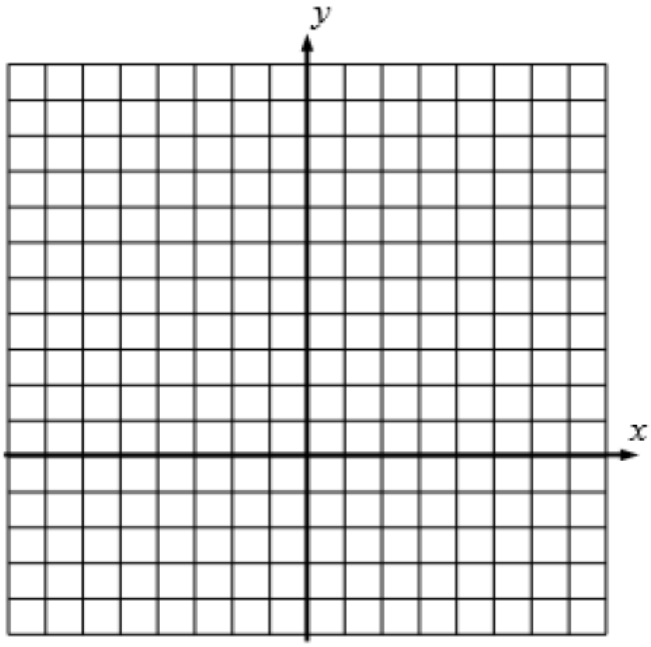
c. Roots (Zeros): _____

d. Domain: _____

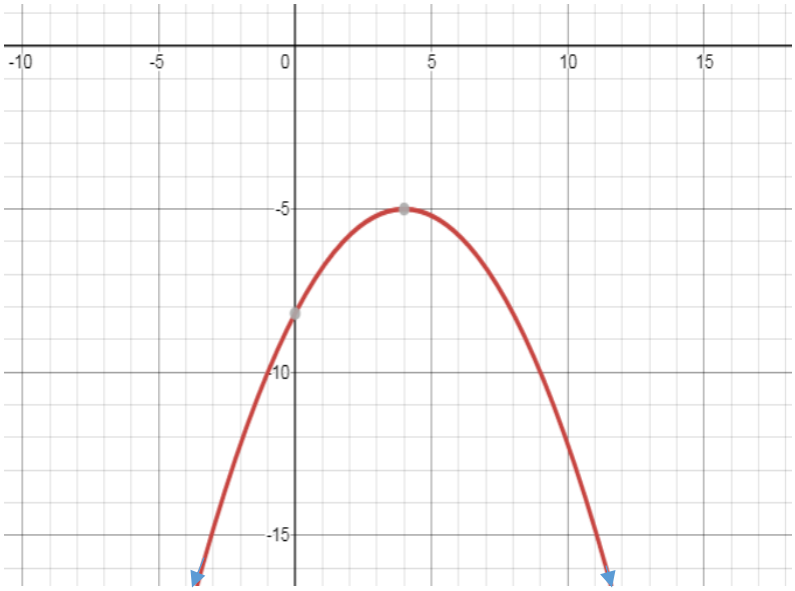
e. Range: _____

f. Interval where increasing: _____

g. Interval where decreasing: _____



2. Given the following graph below, state the:



a. End Behavior:

b. Increasing:

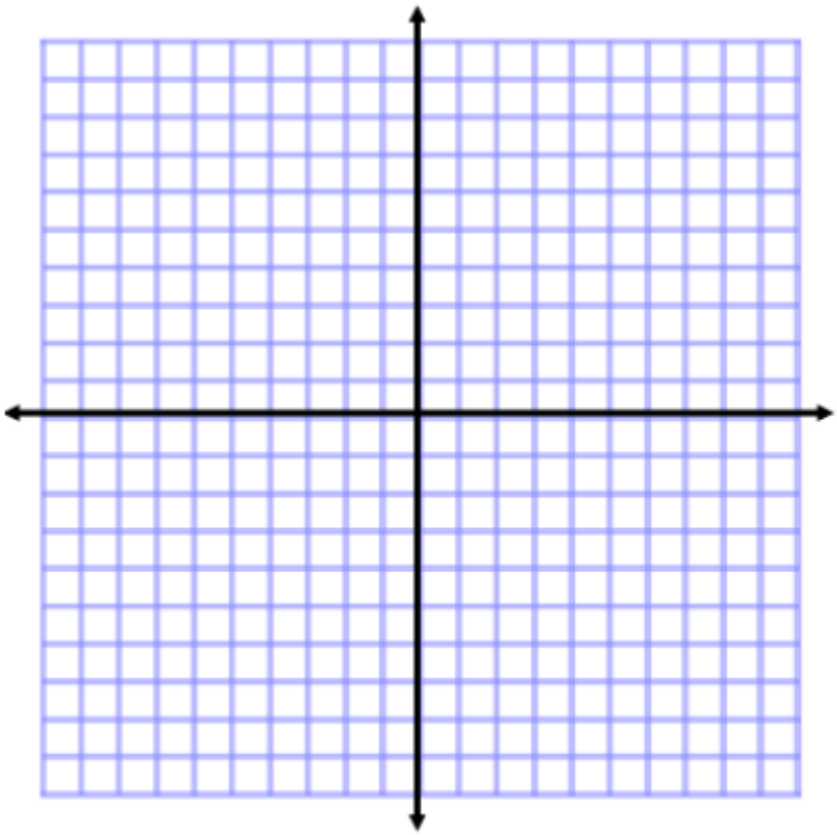
c. Decreasing:

d. Domain:

e. Range:

3. For the quadratic function $f(x) = x^2 + 6x$ defined on the interval $-5 \leq x \leq 1$

a. Graph the function for the stated interval



b. State the range of the function

c. State the interval on which f(x) is increasing

d. State the interval on which f(x) is decreasing

ALGEBRA RH **HW**

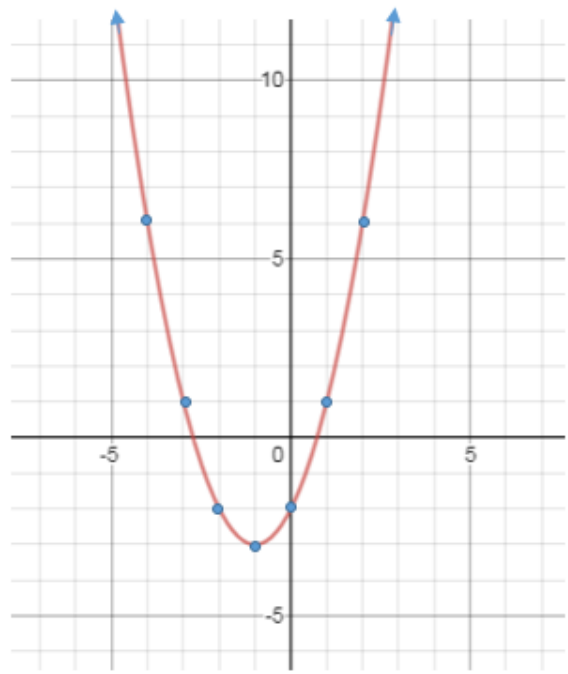
ATTRIBUTES OF A QUADRATIC

1. Graph the quadratic function $y = x^2 + 2x - 2$

$y = x^2 + 2x - 2$

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

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



a. Vertex: $(-1, -3)$

b. Maximum or minimum? **Minimum**

c. Roots (Zeros):

$$x = \frac{-2 \pm \sqrt{2^2 - 4(1)(-2)}}{2(1)}$$

$$x = \frac{-2 \pm \sqrt{12}}{2} \qquad x = \frac{-2 \pm 2\sqrt{3}}{2} \qquad x = -1 \pm \sqrt{3}$$

(two, unequal, irrational roots)

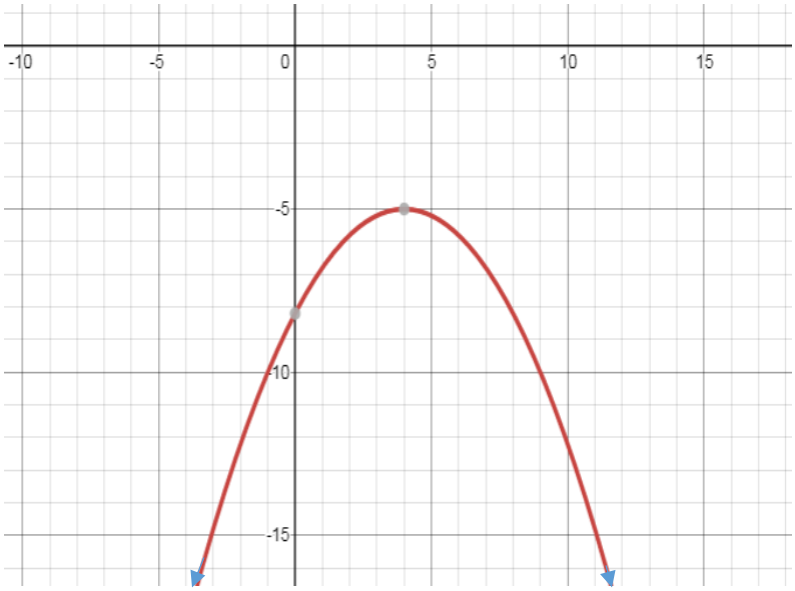
d. Domain: $-\infty < x < \infty$ **or** $(-\infty, \infty)$ **or** **All Real Numbers**

e. Range: $-3 \leq y < \infty$ **or** $[-3, \infty)$ **or** $y \geq -3$

f. Interval where increasing: $x > -1$

g. Interval where decreasing: $x < -1$

2. Given the following graph below, state the:



a. End Behavior: $-\infty$

b. Increasing: $x < 4$

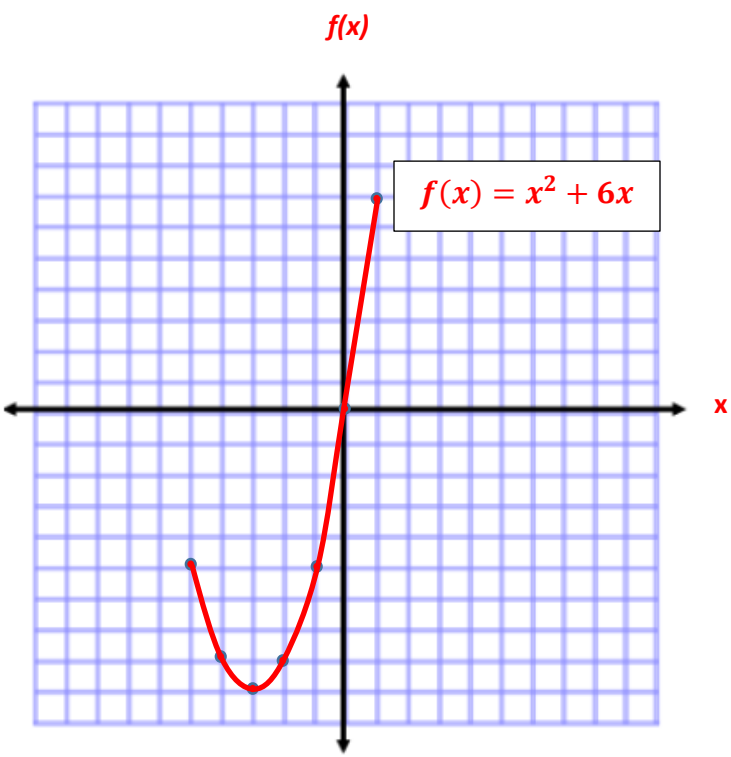
c. Decreasing: $x > 4$

d. Domain: $(-\infty, \infty)$

e. Range: $(-\infty, -5]$ **or** $y \leq -5$

3. For the quadratic function $f(x) = x^2 + 6x$ defined on the interval $-5 \leq x \leq 1$

a. Graph the function for the stated interval



$$x = \frac{-6}{2(1)}$$

$$x = -3$$

x	y
-5	-5
-4	-8
-3	-9
-2	-8
-1	-5
0	0
1	7

b. State the range of the function $-9 \leq y \leq 7$

c. State the interval on which f(x) is increasing $-3 < x \leq 1$

d. State the interval on which f(x) is decreasing $-5 \leq x < -3$