

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Period: \_\_\_\_\_

## Geometry

### Quadratic Graphing Practice

Graph each quadratic function. State the requested information.

1.  $y = -2(x - 2)^2 + 8$  form: \_\_\_\_\_ Opens: \_\_\_\_\_

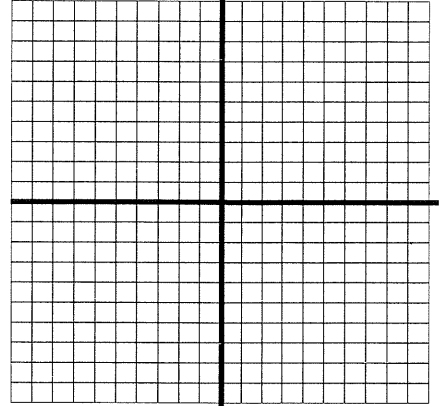
Vertex: \_\_\_\_\_  $a =$  \_\_\_\_\_ Max / Min (Circle one)

AOS: \_\_\_\_\_

x - intercept(s): \_\_\_\_\_ y - intercept: \_\_\_\_\_

Domain: \_\_\_\_\_ Range: \_\_\_\_\_

Avg. Rate of Change [2, 4]: \_\_\_\_\_



End Behavior: As  $x \rightarrow \infty, f(x) \rightarrow$  \_\_\_\_\_ Increasing: \_\_\_\_\_ Positive: \_\_\_\_\_

As  $x \rightarrow -\infty, f(x) \rightarrow$  \_\_\_\_\_ Decreasing: \_\_\_\_\_ Negative: \_\_\_\_\_

2.  $y = x^2 - 2x - 8$  form: \_\_\_\_\_ Opens: \_\_\_\_\_

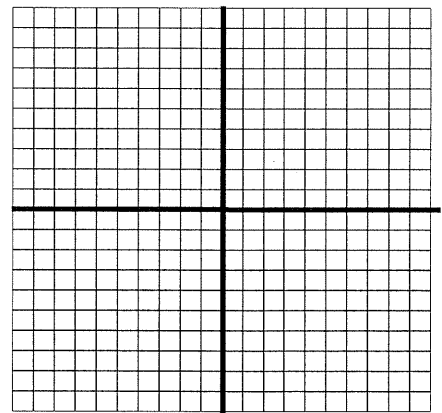
Vertex: \_\_\_\_\_  $a =$  \_\_\_\_\_ Max / Min (Circle one)

AOS: \_\_\_\_\_

x - intercept(s): \_\_\_\_\_ y - intercept: \_\_\_\_\_

Domain: \_\_\_\_\_ Range: \_\_\_\_\_

Avg. Rate of Change [1, 4]: \_\_\_\_\_



End Behavior: As  $x \rightarrow \infty, f(x) \rightarrow$  \_\_\_\_\_ Increasing: \_\_\_\_\_ Positive: \_\_\_\_\_

As  $x \rightarrow -\infty, f(x) \rightarrow$  \_\_\_\_\_ Decreasing: \_\_\_\_\_ Negative: \_\_\_\_\_

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Period: \_\_\_\_\_

3.  $y = -(x + 2)(x - 4)$  form: \_\_\_\_\_ Opens: \_\_\_\_\_

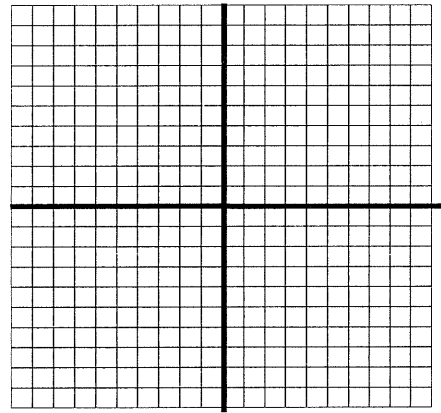
Vertex: \_\_\_\_\_ a = \_\_\_\_\_ Max / Min (Circle one)

AOS: \_\_\_\_\_

x - intercept(s): \_\_\_\_\_ y - intercept: \_\_\_\_\_

Domain: \_\_\_\_\_ Range: \_\_\_\_\_

Avg. Rate of Change  $[-2, 0]$ : \_\_\_\_\_



End Behavior: As  $x \rightarrow \infty, f(x) \rightarrow$  \_\_\_\_\_ Increasing: \_\_\_\_\_ Positive: \_\_\_\_\_

As  $x \rightarrow -\infty, f(x) \rightarrow$  \_\_\_\_\_ Decreasing: \_\_\_\_\_ Negative: \_\_\_\_\_

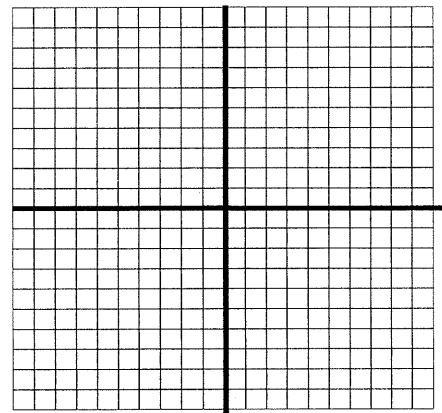
4.  $y = (x - 3)(x + 1)$  form: \_\_\_\_\_ Opens: \_\_\_\_\_

Vertex: \_\_\_\_\_ a = \_\_\_\_\_ Max / Min (Circle one)

AOS: \_\_\_\_\_

x - intercept(s): \_\_\_\_\_ y - intercept: \_\_\_\_\_

Domain: \_\_\_\_\_ Range: \_\_\_\_\_



Avg. Rate of Change  $[1, 3]$ : \_\_\_\_\_

End Behavior: As  $x \rightarrow \infty, f(x) \rightarrow$  \_\_\_\_\_ Increasing: \_\_\_\_\_ Positive: \_\_\_\_\_

As  $x \rightarrow -\infty, f(x) \rightarrow$  \_\_\_\_\_ Decreasing: \_\_\_\_\_ Negative: \_\_\_\_\_

**Geometry**  
**Quadratic Graphing Practice**

Graph each quadratic function. State the requested information.

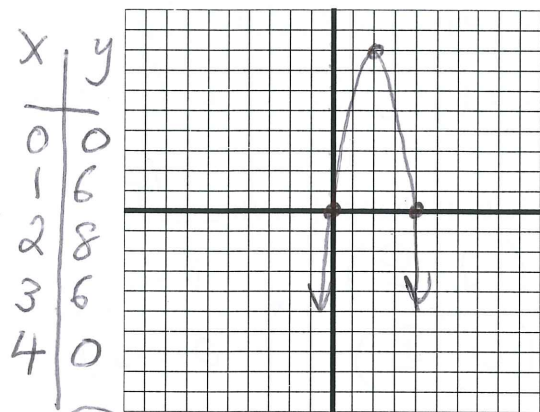
1.  $y = -2(x - 2)^2 + 8$  form: vertex Opens: down

Vertex: (2, 8)  $a = -2$  (Max) / (Min) (Circle one)

AOS:  $x = 2$

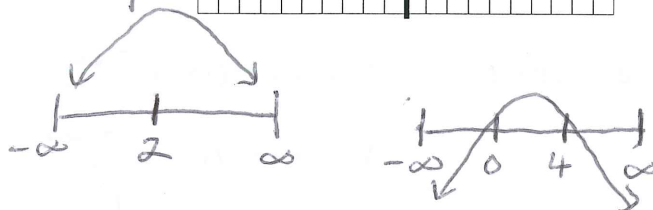
x - intercept(s): (0, 0) (4, 0) y - intercept: (0, 0)

Domain:  $(-\infty, \infty)$  Range:  $(-\infty, 8]$



Avg. Rate of Change [2, 4]: -4

$$\begin{matrix} (2, 8) \\ (4, 0) \end{matrix} \rightarrow \frac{0 - 8}{4 - 2} = \frac{-8}{2} = -4$$



End Behavior: As  $x \rightarrow \infty, f(x) \rightarrow -\infty$  Increasing:  $(-\infty, 2)$  Positive:  $(0, 4)$   
 As  $x \rightarrow -\infty, f(x) \rightarrow -\infty$  Decreasing: (Vertex)  $(2, \infty)$  Negative: (x-int)  $(-\infty, 0), (4, \infty)$

2.  $y = x^2 - 2x - 8$  form: standard Opens: up

Vertex: (1, -9)  $a = 1$  Max / (Min) (Circle one)  $x = \frac{-b}{2a} = \frac{2}{2(1)} = 1$

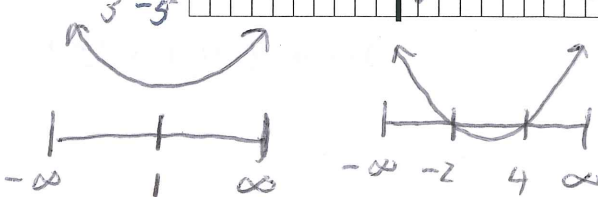
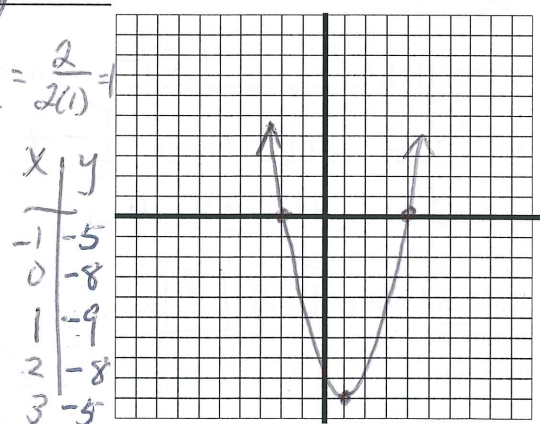
AOS:  $x = 1$

x - intercept(s): (-2, 0) (4, 0) y - intercept: (0, -8)

Domain:  $(-\infty, \infty)$  Range:  $[-9, \infty)$

Avg. Rate of Change [1, 4]: 3

$$\begin{matrix} (1, -9) \\ (4, 0) \end{matrix} \rightarrow \frac{0 - (-9)}{4 - 1} = \frac{9}{3} = 3$$



End Behavior: As  $x \rightarrow \infty, f(x) \rightarrow \infty$  Increasing:  $(1, \infty)$  Positive:  $(-\infty, -2), (4, \infty)$   
 As  $x \rightarrow -\infty, f(x) \rightarrow \infty$  Decreasing:  $(-\infty, 1)$  Negative:  $(-2, 4)$

3.  $y = -(x+2)(x-4)$  form: intercept Opens: down

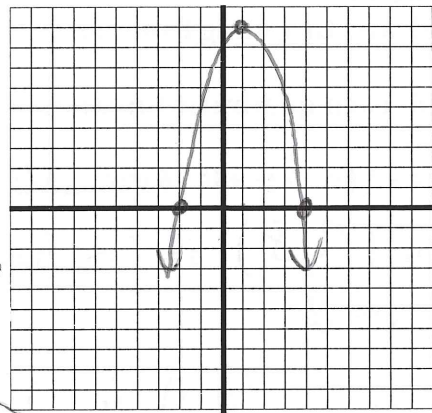
Vertex:  $(1, 9)$   $a = -1$  Max / Min (Circle one)

AOS:  $x = 1$

x-intercept(s):  $(-2, 0)$   $(4, 0)$  y-intercept:  $(0, 8)$

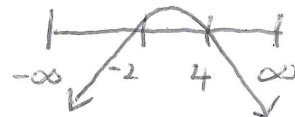
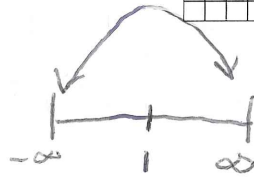
Domain:  $(-\infty, \infty)$  Range:  $(-\infty, 9]$

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



Avg. Rate of Change  $[-2, 0]$ : 4

$$\begin{matrix} (-2, 0) \\ (0, 8) \end{matrix} \rightarrow \frac{8-0}{0-(-2)} = \frac{8}{2} = 4$$



End Behavior: As  $x \rightarrow \infty, f(x) \rightarrow -\infty$  Increasing:  $(-\infty, 1)$  Positive:  $(-2, 4)$   
 As  $x \rightarrow -\infty, f(x) \rightarrow -\infty$  Decreasing:  $(1, \infty)$  Negative:  $(-\infty, -2), (4, \infty)$   
 (vertex) (x-int)

4.  $y = (x-3)(x+1)$  form: intercept Opens: up

Vertex:  $(1, -4)$   $a = 1$  Max / Min (Circle one)

AOS:  $x = 1$

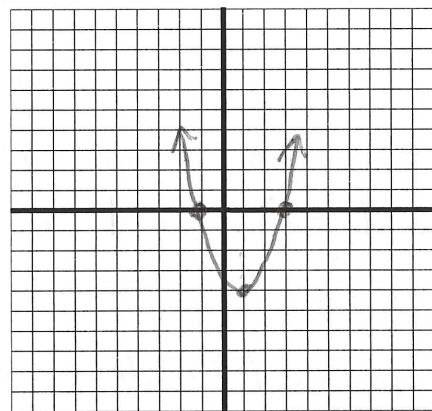
x-intercept(s):  $(3, 0)$   $(-1, 0)$  y-intercept:  $(0, -3)$

Domain:  $(-\infty, \infty)$  Range:  $[-4, \infty)$

$$\begin{matrix} (1, -4) \\ (3, 0) \end{matrix} \rightarrow \frac{0-(-4)}{3-1} = \frac{4}{2} = 2$$

Avg. Rate of Change  $[1, 3]$ : 2

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



End Behavior: As  $x \rightarrow \infty, f(x) \rightarrow \infty$  Increasing:  $(1, \infty)$  Positive:  $(-\infty, -1), (3, \infty)$   
 As  $x \rightarrow -\infty, f(x) \rightarrow \infty$  Decreasing:  $(-\infty, 1)$  Negative:  $(-1, 3)$   
 vertex x-int

