

Math 2

Graphing Quadratics

Name _____

Date _____ Per ____

Graph each quadratic. Make sure to label all key components.

1. $f(x) = (x - 3)(x + 5)$

Maximum or Minimum _____

Vertex _____

AOS _____

x - intercepts $(3, 0)$ $(-5, 0)$

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

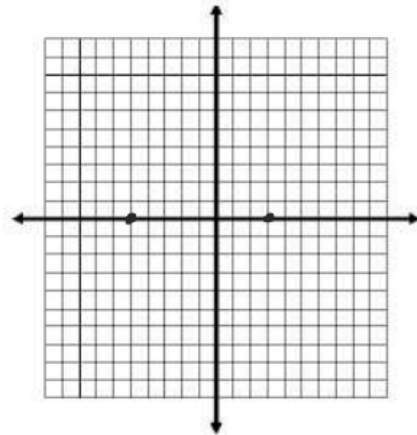
y - intercept _____

Domain _____

Range _____

Intervals of Increasing _____

Intervals of Decreasing _____



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

Maximum or Minimum _____

Vertex _____

AOS _____

x - intercepts _____

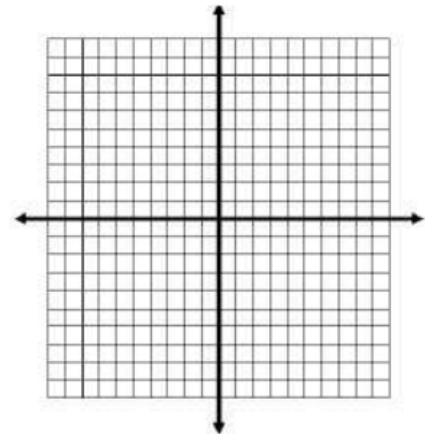
y - intercept _____

Domain _____

Range _____

Intervals of Increasing _____

Intervals of Decreasing _____



3. $f(x) = -(x + 2)^2 + 3$

Maximum or Minimum _____

Vertex _____

AOS _____

x – intercepts _____

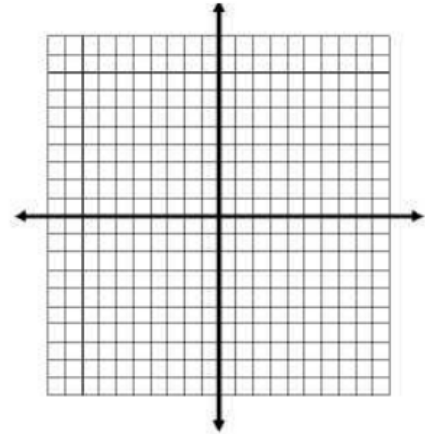
y – intercept _____

Domain _____

Range _____

Intervals of Increasing _____

Intervals of Decreasing _____



4. $f(x) = -2(x - 2)(x - 2)$

Maximum or Minimum _____

Vertex _____

AOS _____

x – intercepts _____

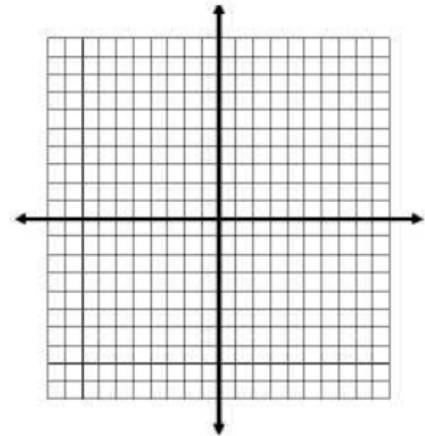
y – intercept _____

Domain _____

Range _____

Intervals of Increasing _____

Intervals of Decreasing _____



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5. $f(x) = -3x^2 + 6x - 4$

Maximum or Minimum _____

Vertex _____

AOS _____

x - intercepts _____

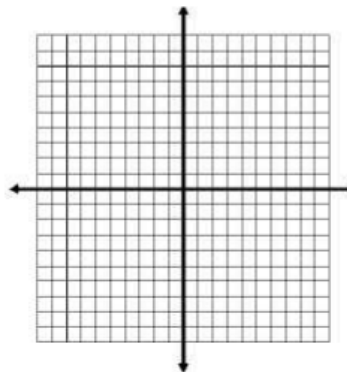
y - intercept _____

Domain _____

Range _____

Intervals of Increasing _____

Intervals of Decreasing _____



6. $f(x) = (2x + 1)(2x - 3)$

Maximum or Minimum _____

Vertex $(\frac{1}{2}, -4)$

AOS $x = \frac{1}{2}$

x - intercepts $(-\frac{1}{2}, 0)$ $(\frac{3}{2}, 0)$

y - intercept $(0, -3)$

Domain $(-\infty, \infty)$

Range $[-4, \infty)$

Intervals of Increasing _____

$(\frac{1}{2}, \infty)$

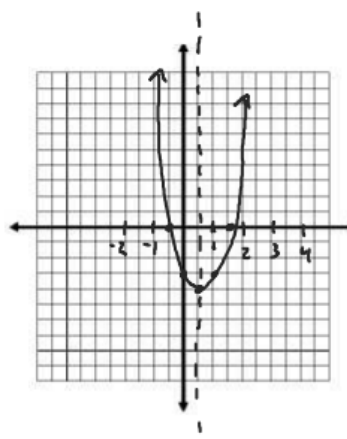
Intervals of Decreasing _____

$(-\infty, \frac{1}{2})$

$2x + 1 = 0$ $2x - 3 = 0$
 $2x = -1$ $2x = 3$
 $x = -\frac{1}{2}$ $x = \frac{3}{2}$

$\frac{-\frac{1}{2} + \frac{3}{2}}{2} = \frac{1}{2}$

$(2(\frac{1}{2}) + 1)(2(\frac{1}{2}) - 3)$
 $(1 + 1)(1 - 3)$
 $(2)(-2)$
 -4



$(2(0) + 1)(2(0) - 3)$
 $(1)(-3)$
 -3

7. $f(x) = 2(x - 1)^2 - 5$

Maximum or Minimum

Vertex (1, -5)

AOS _____

x - intercepts _____

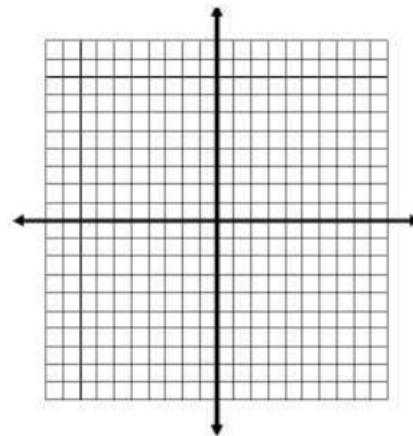
y - intercept _____

Domain _____

Range _____

Intervals of Increasing

Intervals of Decreasing



8. $f(x) = x^2 + 6x + 9$

Maximum or Minimum

Vertex _____

AOS _____

x - intercepts _____

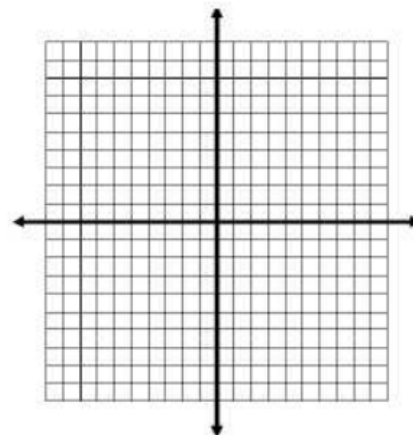
y - intercept _____

Domain _____

Range _____

Intervals of Increasing

Intervals of Decreasing



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9. $f(x) = -2(x-2)(x+4)$

Maximum or Minimum

Vertex $(-1, 18)$

AOS $x = -1$

x-intercepts $(2, 0)$ $(-4, 0)$

$$x-2=0 \quad x+4=0$$

$$x=2 \quad x=-4$$

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

$$-2(-1-2)(-1+4)$$

$$-2(-3)(3) = 18$$

y-intercept $(0, 16)$

Domain $(-\infty, \infty)$

Range $(-\infty, 18]$

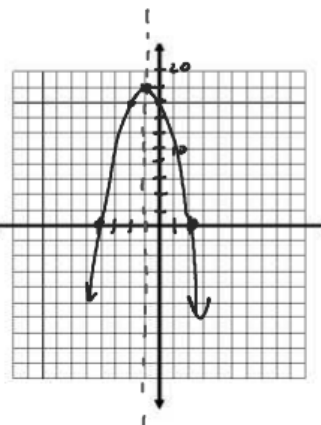
Intervals of Increasing

$(-\infty, -1)$

Intervals of Decreasing $(-1, \infty)$

$$-2(0-2)(0+4)$$

$$-2(-2)(4) = 16$$



10. $f(x) = x^2 - 9$

$$x^2 + 0x - 9$$

Maximum or Minimum

Vertex $(0, -9)$

AOS $x = 0$

x-intercepts $(-3, 0)$ $(3, 0)$

$$x = \frac{-b}{2a} = \frac{0}{2(1)} = 0$$

$$f(0) = (0)^2 - 9$$

$$= -9$$

$$0 = x^2 - 9$$

$$(x+3)(x-3) = 0$$

$$x+3=0 \quad x-3=0$$

$$x=-3 \quad x=3$$

y-intercept $(0, -9)$

Domain $(-\infty, \infty)$

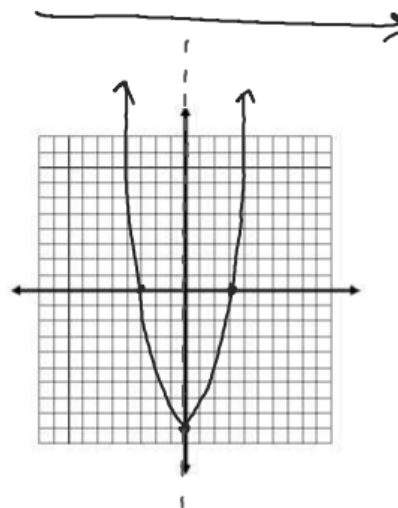
Range $[-9, \infty)$

Intervals of Increasing

$(0, \infty)$

Intervals of Decreasing

$(-\infty, 0)$



11. $f(x) = \frac{1}{4}(x - 4)^2 - 8$

Maximum or Minimum _____

Vertex _____

AOS _____

x - intercepts _____

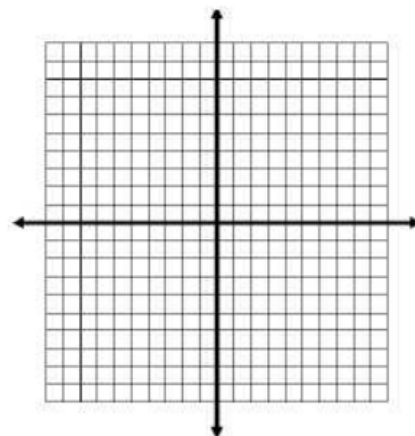
y - intercept _____

Domain _____

Range _____

Intervals of Increasing _____

Intervals of Decreasing _____



12. $f(x) = \frac{1}{4}(x + 4)^2$

Maximum or Minimum _____

Vertex _____

AOS _____

x - intercepts _____

y - intercept _____

Domain _____

Range _____

Intervals of Increasing _____

Intervals of Decreasing _____

