

Name: ANSWERS

Graphing Quadratic Functions

1) Identify the values of a , b , and c for the quadratic function in standard form: $y = -8x^2 + 6x - 2$

$$\begin{array}{ccc} \underline{\underline{a}} & \underline{\underline{b}} & \underline{\underline{c}} \\ -8 & 6 & -2 \end{array}$$

2) Which of the following quadratic functions opens down?

A) $y = x^2 - 6x + 3$

B) $y = -4x^2 + 9$

C) $y = 0.5x^2 - 9x + 6$

D) $y = 16x^2 + 14x + 9$

How do you know? Explain: the value of a is negative (-4)

3) Which of the following is the equation/formula for finding the Line of Symmetry (LOS)?

A) $x = \frac{-b}{2a}$

B) $x = \frac{-a}{2b}$

C) $x = \frac{b}{2a}$

D) $x = \frac{-c}{2a}$

For #4-5, fill in the blank.

4) If a parabola opens down, then it has a maximum.

5) If a parabola opens up, then it has a minimum.

6) For the following quadratic function: $y = 3x^2 + 8x - 6$

a) Find the LOS.

$$x = \frac{-8}{2(3)} = \frac{-8}{6} = -\frac{4}{3} \quad x = \frac{-b}{2a}$$

b) Find the vertex.

$$y = 3\left(-\frac{4}{3}\right)^2 + 8\left(-\frac{4}{3}\right) - 6 = -\frac{34}{3} \quad \left(-1.\bar{3}, -11.\bar{3}\right)$$

7) For the following quadratic function: $y = 4x^2 + 8x - 3$

a) Find the LOS.

$$x = \frac{-8}{2(4)} = \frac{-8}{8} = -1$$

$$x = \frac{-b}{2a}$$

b) Find the vertex.

$$y = 4(-1)^2 + 8(-1) - 3$$

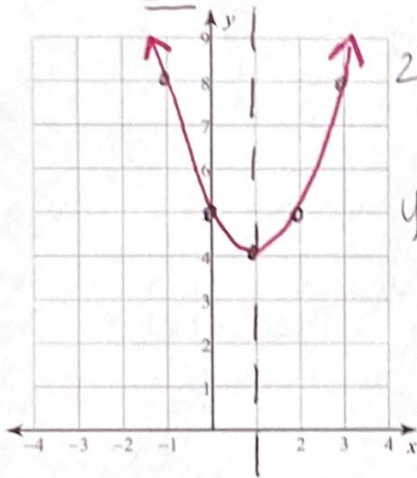
$$= 4 - 8 - 3 = -4 - 3 = -7$$

$$\boxed{(-1, -7)}$$

Sketch the graph of each function and identify the vertex.

8) $y = x^2 - 2x + 5$

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



2) Vertex
(1, 4)

$$y = (1)^2 - 2(1) + 5$$

$$= 1 - 2 + 5$$

$$= -1 + 5 = 4$$

3) y intercept

$$y = 5$$

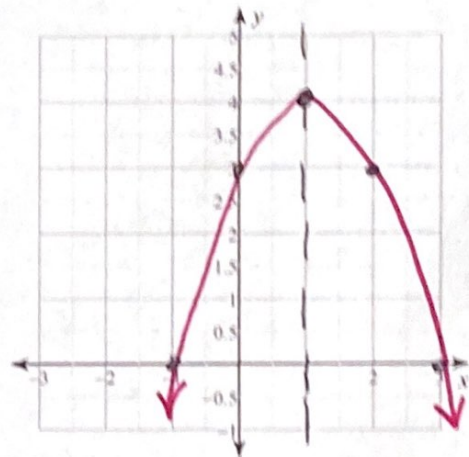
4.)

x	y
3	8

$$(3)^2 - 2(3) + 5$$

$$9 - 6 + 5 = 8$$

9) $y = -x^2 + 2x + 3$



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

2.) Vertex

$$y = -(1)^2 + 2(1) + 3$$

$$= -1 + 2 + 3 = 4$$

(1, 4)

3.) y intercept

$$y = 3$$

4.)

x	y
3	0

$$y = -(3)^2 + 2(3) + 3$$

$$= -9 + 6 + 3 = 0$$