

NAME: \_\_\_\_\_

*P.I. A.A.41: Determine the vertex and axis of symmetry of a parabola, given its equation*

1. Find the coordinates of the vertex for the graph of  $y = x^2 + 8x - 1$ .

[A] (8, -1)                      [B] (4, 4)  
[C] (-8, -1)                    [D] (-4, -17)

2. Without graphing, determine whether the given quadratic function has a maximum or a minimum value and then find the value.

$$y = -x^2 + 6x - 5$$

[A] minimum, 3                [B] minimum, 4  
[C] maximum, 4               [D] maximum, 3

3. Find the equation of the axis of symmetry and the coordinates of the vertex of the graph of the function.

$$y = 3x^2 - 12x - 3$$

[A]  $x = 2$ ; (2, -15)        [B]  $x = -2$ ; (-2, 9)  
[C]  $x = -2$ ; (-2, 33)      [D]  $x = 2$ ; (2, 33)

4. Find the equation of the axis of symmetry and the coordinates of the vertex of the graph of the function.

$$y = 4x^2 + 8x + 3$$

[A]  $x = -1$ ; (-1, 15)        [B]  $x = 1$ ; (1, 15)  
[C]  $x = -1$ ; (-1, -1)       [D]  $x = 1$ ; (1, 7)

5. Find the vertex of the parabola  $y = 3x^2 - 2x + 2$ .

[A]  $\left(\frac{1}{3}, 3\right)$                       [B]  $\left(-\frac{1}{3}, 3\right)$

[C]  $\left(\frac{1}{3}, \frac{5}{3}\right)$                       [D]  $\left(-\frac{1}{3}, \frac{5}{3}\right)$

6. Find the vertex of the parabola  $y = x^2 - 5x - 1$ .

[A]  $\left(\frac{5}{2}, \frac{71}{4}\right)$                       [B]  $\left(\frac{5}{2}, -\frac{29}{4}\right)$

[C]  $\left(-\frac{5}{2}, \frac{71}{4}\right)$                       [D]  $\left(-\frac{5}{2}, -\frac{29}{4}\right)$

7. Find the equation of the axis of symmetry and the coordinates of the vertex of the graph of the function.

$$y = -x^2 - 4x + 2$$

8. Find the equation of the axis of symmetry and the coordinates of the vertex of the graph of the function.

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

9. Find the equation of the axis of symmetry of  $y = 2x^2 - x + 8$ .

10. Find the equation of the axis of symmetry of  $y = 2x^2 - 7x - 2$ .

[1] D

[2] D

[3] A

[4] C

[5] C

[6] B

[7]  $x = -2; (-2, 6)$   
\_\_\_\_\_

[8]  $x = 1\frac{1}{2}; \left(1\frac{1}{2}, 4\frac{1}{4}\right)$   
\_\_\_\_\_

[9]  $x = \frac{1}{4}$   
\_\_\_\_\_

[10]  $x = \frac{7}{4}$   
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