Integrated Algebra Practice: A.A.41
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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 equation of the axis of symmetry and the coordinates of the vertex of the graph of the function.
   $y = -x^2 - 4x + 2$

6. Find the equation of the axis of symmetry and the coordinates of the vertex of the graph of the function.
   $y = 2x^2 - 4x + 4$

7. Find the equation of the axis of symmetry of $y = 2x^2 - 4x + 1$.

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8. Find the equation of the axis of symmetry of $y = 4x^2 + 8x + 4$.

9. Compare the quantities in Column A and Column B.

Column A	Column B
the y-coordinate of the vertex of the graph of $y = x^2 - 8x + 16$	the y-coordinate of the vertex of the graph of $y = -x^2 - 8x + 16$

[A] The quantity in Column A is greater. [B] The quantity in Column B is greater.

[C] The quantities are equal. [D] The relationship cannot be determined from the information given.

10. Compare the quantities in Column A and Column B.

Column A	Column B
the x-coordinate of the vertex of the graph of $y = x^2 + 4$	the x-coordinate of the vertex of the graph of $y = x^2 - 4$

[A] The quantity in Column A is greater. [B] The quantity in Column B is greater.

[C] The quantities are equal. [D] The relationship cannot be determined from the information given.

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[1] D

[2] D

[3] A

[4] C

[5] $x = -2$; $(-2, 6)$

[6] $x = 1$; $(1, 2)$

[7] $x = 1$

[8] $x = -1$

[9] B

[10] C