F.IF.C.7: Graphing Quadratic Functions 3
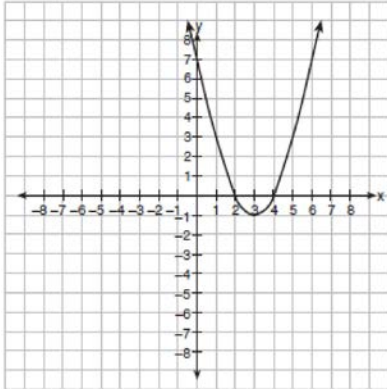
1 Which is an equation of the line of symmetry for the parabola in the accompanying diagram?

1) $x = 2$
2) $x = 4$
3) $x = 3$
4) $y = 3$

2 For which quadratic equation is the axis of symmetry $x = 3$?

1) $y = -x^2 + 3x + 5$
2) $y = -x^2 + 6x + 2$
3) $y = x^2 + 6x + 3$
4) $y = x^2 + x + 3$

3 What is the turning point, or vertex, of the parabola whose equation is $y = 3x^2 + 6x - 1$?

1) $(1,8)$
2) $(-1,-4)$
3) $(-3,8)$
4) $(3,44)$

4 What is the minimum point of the graph of the equation $y = 2x^2 + 8x + 9$?

1) $(2,33)$
2) $(2,17)$
3) $(-2,-15)$
4) $(-2,1)$

5 Point $A(1,0)$ is a point on the graph of the equation $y = x^2 - 4x + 3$. When point A is reflected across the axis of symmetry, what are the coordinates of its image, point A'?

1) $(-1,2)$
2) $(0,3)$
3) $(2,-1)$
4) $(3,0)$

6 What are the coordinates of the turning point of the parabola whose equation is $y = -x^2 + 4x + 1$?

1) $(-2,-11)$
2) $(-2,-3)$
3) $(2,5)$
4) $(2,13)$

7 If the equation of the axis of symmetry of a parabola is $x = 2$, at which pair of points could the parabola intersect the x-axis?

1) $(3,0)$ and $(5,0)$
2) $(3,0)$ and $(2,0)$
3) $(3,0)$ and $(1,0)$
4) $(-3,0)$ and $(-1,0)$

8 An equation of a parabola that has $x = -2$ as its axis of symmetry is

1) $y = x^2 - 4x + 1$
2) $y = x^2 - 2x + 3$
3) $y = 2x^2 + 8x - 3$
4) $y = 2x^2 + 4x - 7$

9 Which is the equation of the axis of symmetry of the graph of the equation $y = x^2 - 3x - 6$?

1) $x = 3$
2) $x = \dfrac{3}{2}$
3) $y = 3$
4) $y = \dfrac{3}{2}$

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Answer Section

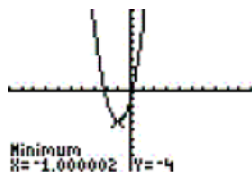1 ANS: 3   REF: 010606a

2 ANS: 2

$$x = \frac{-b}{2a} = \frac{-(6)}{2(-1)} = 3$$

   REF: 060514b

3 ANS: 2

$$x = \frac{-b}{2a} = \frac{-(6)}{2(3)} = -1$$

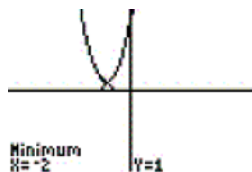$$y = 3(-1)^2 + 6(-1) - 1 = -4$$

   REF: 080501b

4 ANS: 4

$$x = \frac{-b}{2a} = \frac{-(8)}{2(2)} = -2$$

$$y = 2(-2)^2 + 8(-2) + 9 = 1$$

   REF: 080603b

5 ANS: 4

The axis of symmetry of $y = x^2 - 4x + 3$ is: $x = \frac{-b}{2a} = \frac{-(-4)}{2(1)} = 2$. The reflection of point A(1,0) over the

line $x = 2$ is point A'(3,0).

   REF: 060908b

6 ANS: 3

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

$$y = -(2)^2 + 4(2) + 1 = 5$$

   REF: 080902b

7 ANS: 3

The axis of symmetry of a parabola intersecting the *x*-axis at two points goes through the midpoint of the line segment connecting those two points. The midpoint of (3,0) and (1,0) is (2,0).

   REF: 080912b

8 ANS: 3   REF: 011004b

9   ANS: 2

$$x = \frac{-b}{2a} = \frac{-(-3)}{2(1)} = \frac{3}{2}$$

REF: 061012b