

Chapter 2: Quadratic Functions

Lesson 5: Extra Practice

Ⓜ Question #1: False Statements about Quadratic Functions

Reference Q.13786

Which one of the following statements is false?

- A. The zeros of the function $f(x) = x^2 + 4x - 5$ are the roots of the equation $x^2 + 4x - 5 = 0$
- B. The x -intercepts of the graph of the function with equation $y = x^2 + 5x + 6$ are the factors of the expression $x^2 + 5x + 6$.
- C. If $x = 3$ is a root of the equation $f(x) = 0$, then $x - 3$ is a factor of $f(x)$.
- D. If $x + 7$ is a factor of the function with equation $y = f(x)$, then -7 is an x -intercept of the graph of the function.

Ⓜ Question #2: Zeros of a Quadratic Function

Reference Q.13788

The zeros of the function $f(x) = 3(x - 5)(3x + 2)$ are:

- A. $5, -\frac{2}{3}$
- B. $-5, \frac{2}{3}$
- C. $0, 5, -\frac{2}{3}$
- D. $3, 5, -\frac{2}{3}$

Ⓜ Question #3: Vertex of a Parabola

Reference Q.13789

The graph of the function $f(x) = (x - a)^2 - b$ is a parabola. Which of the following is a correct statement about the graph?

- A. There is a maximum point at $(-a, -b)$.
- B. There is a maximum point at $(a, -b)$.
- C. There is a minimum point at $(-a, b)$.
- D. There is a minimum point at $(a, -b)$.

Ⓜ Question #4: Range of a Quadratic Function

Reference Q.13790

The range of the function $f(x) = -2(x - 1)^2 + 8$ is all real numbers such that

- A. $y \geq 8$
- B. $y \leq 8$
- C. $y \geq 1$
- D. $y \leq 1$

Ⓜ Question #5: Vertex of a parabola

Reference Q.13791

The coordinates of the vertex of the graph of the function $g(x) = x^2 - 4x + 11$ are

- A. $(2, 15)$
- B. $(2, 7)$
- C. $(4, -5)$
- D. $(4, 11)$

Ⓜ Question #6: Transformation of a Quadratic Function

Reference Q.13792

The graph of $y = x^2$ is translated 4 units left. The equation of the transformed graph is

- A. $y = x^2 + 4$
- B. $y = x^2 - 4$
- C. $y = (x + 4)^2$
- D. $y = (x - 4)^2$

Ⓜ Question #7: Transformation of a Quadratic Function

Reference Q.13793

The graph of $y = x^2$ undergoes two transformations to form the graph of $y = 4(x - 5)^2$.

Which of the following is one of these transformations?

- A. a horizontal translation 5 units left
- B. a vertical translation 4 units up
- C. a vertical stretch by a factor of 4 about the x -axis
- D. a vertical stretch by a factor of 5 about the x -axis

Ⓜ Question #8: Evaluating a variable using a point on a parabola

Reference Q.13807

The graph of $y = (x - 5)^2 + b$ passes through the point $(3, 24)$. The value of b is ____.

Ⓜ Question #9: Quadratic Function in Standard Form

Reference Q.13808

The quadratic function $f(x) = x^2 - 12x + 41$ can be written in standard form $f(x) = (x - a)^2 + b$.

Write a two-digit number with b first digit and a second digit.

Ⓜ Question #10: Transformed Quadratic Function

Reference Q.13809

The quadratic function $f(x) = x^2$ is transformed to

$$g(x) = -\frac{2}{3}(x + 3)^2 + 6.$$

The point $(6, 36)$ on the graph of f is transformed to which point on the graph of g ?

- A. $(3, -30)$
- B. $(3, -28)$
- C. $(3, -18)$
- D. $(-6, 42)$

Ⓜ Question #11: Equation of the Axis of Symmetry

Reference Q.13810

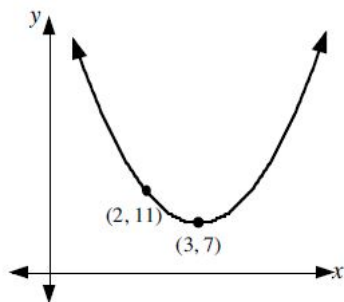
The graph of a quadratic function has x -intercepts at m and at $5m$ and a y -intercept of n . The equation of the axis of symmetry of the graph is

- A. $x = \frac{m + n}{2}$
- B. $x = \frac{6m + n}{3}$
- C. $x = 3m$
- D. $x = 6m$

Ⓢ Question #12: Value of a

Reference Q.13811

The graph of the quadratic function $f(x) = ax^2 + bx + c$ has vertex $(3, 7)$



and passes through the point $(2, 11)$.

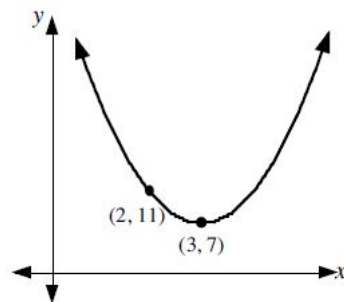
The value of a is

- A. -4
- B. 4
- C. -18
- D. 18

Ⓢ Question #13: Discriminant of a Parabola

Reference Q.13812

The graph of the quadratic function $f(x) = ax^2 + bx + c$ has vertex $(3, 7)$



and passes through the point $(2, 11)$.

The value of $b^2 - 4ac$ is

- A. positive
- B. negative
- C. zero
- D. unable to be determined