

Review: Quadratics

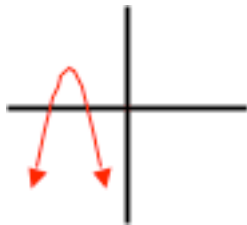
1. A penny is dropped off a bridge, and travels a vertical distance of 42 meters. The height of the penny above the ground (h) after being dropped is given by the equation $h = -4.9t^2 + 2t + 42$. How long does it take the penny to hit the water?

- A) 2.73 seconds
- B) 3.14 seconds
- C) 42 seconds
- D) 4.9 seconds

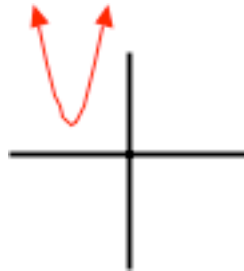
2. Which of the graphs shown below best represents the shape and orientation of a function defined by the equation:

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

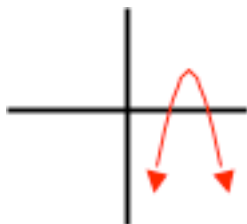
A)



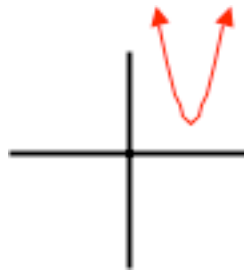
B)



C)



D)



3. Determine the equation of the quadratic function that passes through $(-1, 8)$ with roots $-2 \pm \sqrt{5}$.

- A) $y = -2x^2 - 8x + 2$
- B) $y = x^2 + 4x - 1$
- C) $y = -x^2 - 6x$
- D) $y = 2x^2 + 8x - 2$

4. For what values of k does the function $f(x) = x^2 + 3x - k$ cross the x -axis twice?

- A) $k > 0$
- B) $k = 9/4$
- C) $k < -9/4$
- D) $k > -9/4$

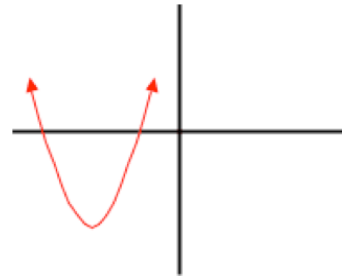
5. The height of a ball tossed in the air is defined by the equation: $h(t) = -5t^2 + 10t + 3$

At what time does the ball reach its highest point?

- A) 1 second
- B) 8 seconds
- C) 5 seconds
- D) 3 seconds

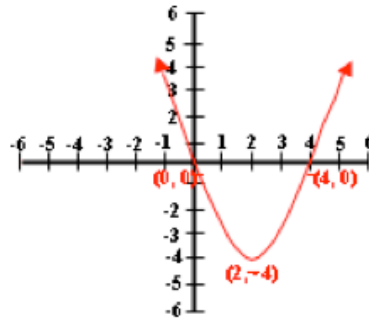
6. The coordinates of the vertex of the graph shown are $(-3, -4)$ and the graph has a vertical scale of 1. Given this information, what are the coordinates of the x -intercepts?

- A) $(-1, 0)$
- B) $(-1, 0)$ and $(-5, 0)$
- C) $(-3, -4)$
- D) There are no x -intercepts for this function



7. Using the information provided in the graph shown, what is the equation of the parabola?

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



8. Which of the equations listed below best describes a parabola with a maximum value of 2 when $x = 1$?

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

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

C) $y = x^2 - x + 2$

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

9. A parabola with an axis of symmetry defined by the equation $x - 2 = 0$ and a vertex at $(2, -4)$ also passes through the point $(4, 0)$. Given this information, the parabola has a y-intercept of:

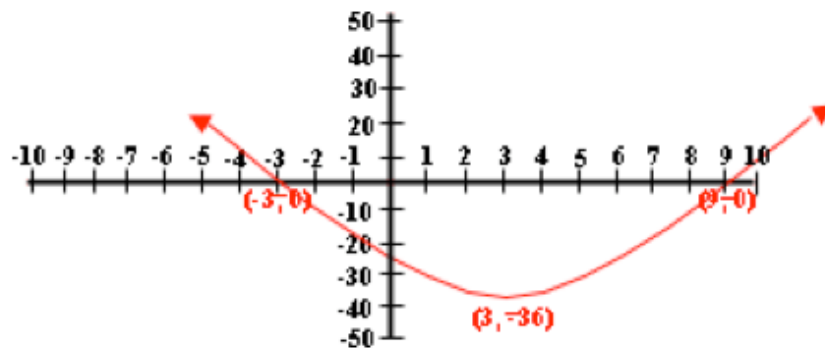
A) $(0, 4)$

B) $(-2, 0)$

C) $(0, 0)$

D) $(2, 0)$

10. Using the information provided in the graph, what is the equation of the parabola shown, and what is the value of its roots?



A) $y = x^2 - 33x - 108$; roots are $x = -3, 9$

B) $y = (x + 36)^2 + 3$; roots are $x = -36, 3$

C) $y = x^2 - 6x - 27$; roots are $x = -3, 9$

D) $y = x^2 + 6x - 27$; roots are $x = 3, -9$