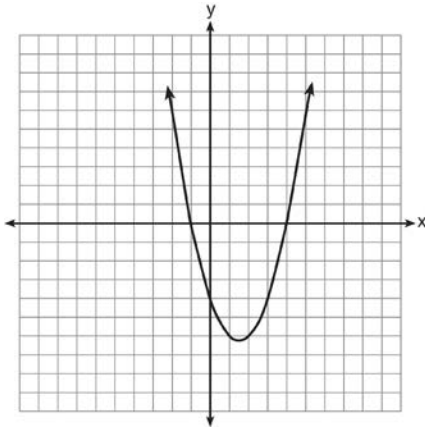


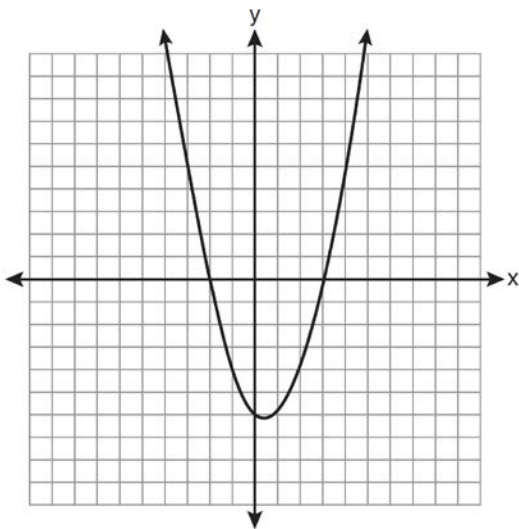
F.IF.C.7: Graphing Quadratic Functions

- 1 The roots of a quadratic equation can be found using the graph below.



What are the roots of this equation?

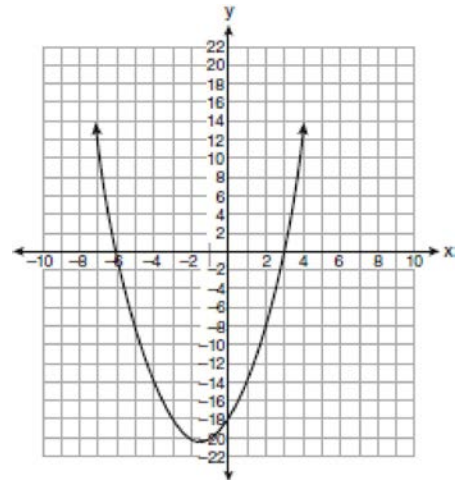
- 1) -4, only
 - 2) -4 and -1
 - 3) -1 and 4
 - 4) -4, -1, and 4
- 2 A student correctly graphed the parabola shown below to solve a given quadratic equation.



What are the roots of the quadratic equation associated with this graph?

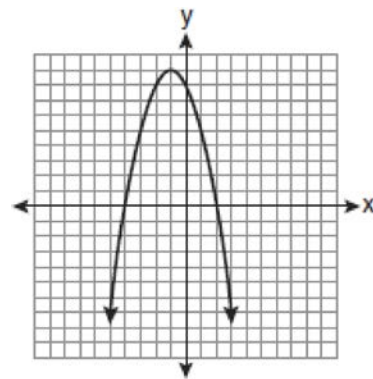
- 1) -6 and 3
- 2) -6 and 0
- 3) -3 and 2
- 4) -2 and 3

- 3 The equation $y = x^2 + 3x - 18$ is graphed on the set of axes below.



Based on this graph, what are the roots of the equation $x^2 + 3x - 18 = 0$?

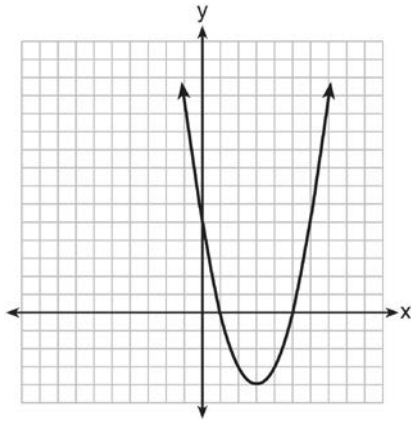
- 1) -3 and 6
 - 2) 0 and -18
 - 3) 3 and -6
 - 4) 3 and -18
- 4 The equation $y = -x^2 - 2x + 8$ is graphed on the set of axes below.



Based on this graph, what are the roots of the equation $-x^2 - 2x + 8 = 0$?

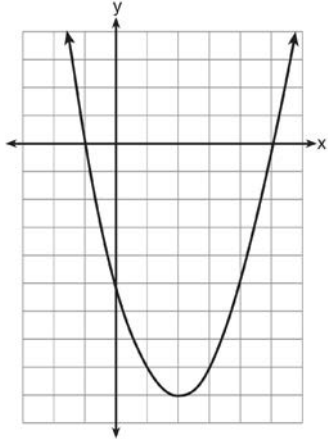
- 1) 8 and 0
- 2) 2 and -4
- 3) 9 and -1
- 4) 4 and -2

- 5 The equation $y = ax^2 + bx + c$ is graphed on the set of axes below.



Based on the graph, what are the roots of the equation $ax^2 + bx + c = 0$?

- 1) 0 and 5
 - 2) 1 and 0
 - 3) 1 and 5
 - 4) 3 and -4
- 6 The graph of $f(x)$ is shown below.

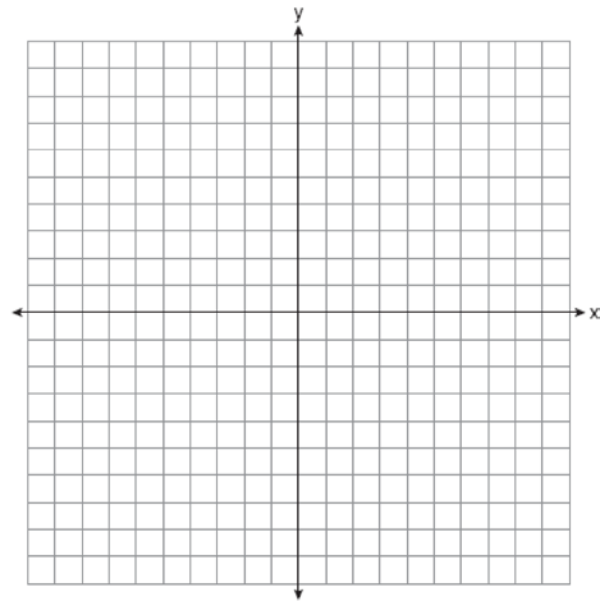


Based on this graph, what are the roots of the equation $f(x) = 0$?

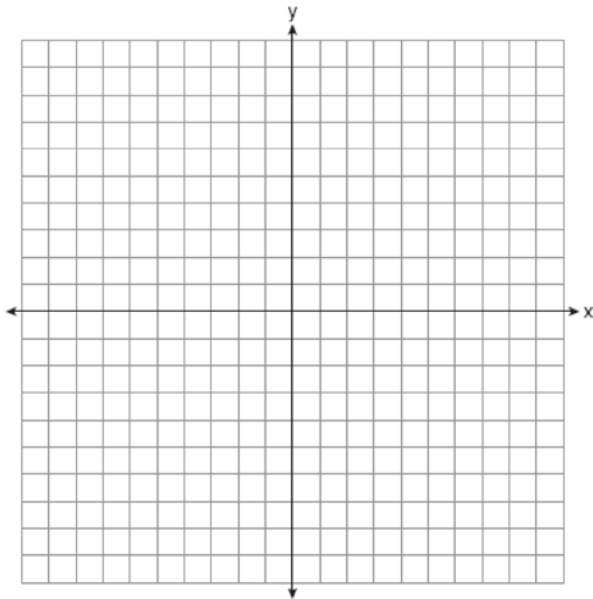
- 1) 1 and -5
- 2) -1 and 5
- 3) 2 and -9
- 4) -1 and -5 and 5

- 7 A ball is thrown straight up at an initial velocity of 54 feet per second. The height of the ball t seconds after it is thrown is given by the formula $h(t) = 54t - 12t^2$. How many seconds after the ball is thrown will it return to the ground?

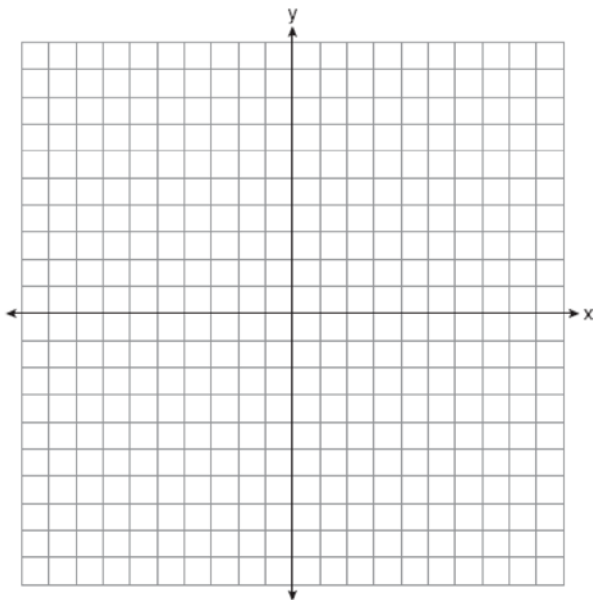
- 1) 9.2
 - 2) 6
 - 3) 4.5
 - 4) 4
- 8 Graph the equation $y = x^2 - 2x - 3$ on the accompanying set of axes. Using the graph, determine the roots of the equation $x^2 - 2x - 3 = 0$.



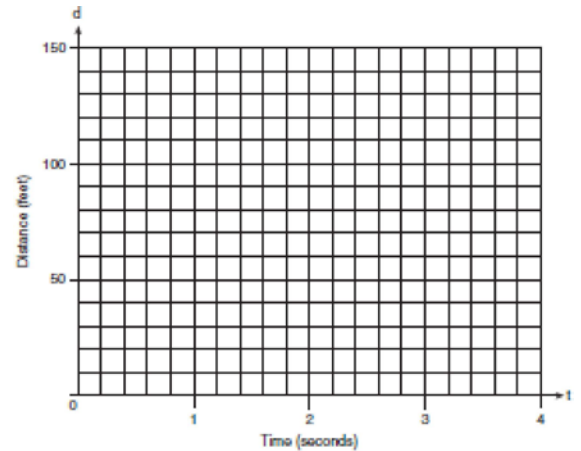
- 9 On the set of axes below, graph the equation $y = x^2 + 2x - 8$. Using the graph, determine and state the roots of the equation $x^2 + 2x - 8 = 0$.



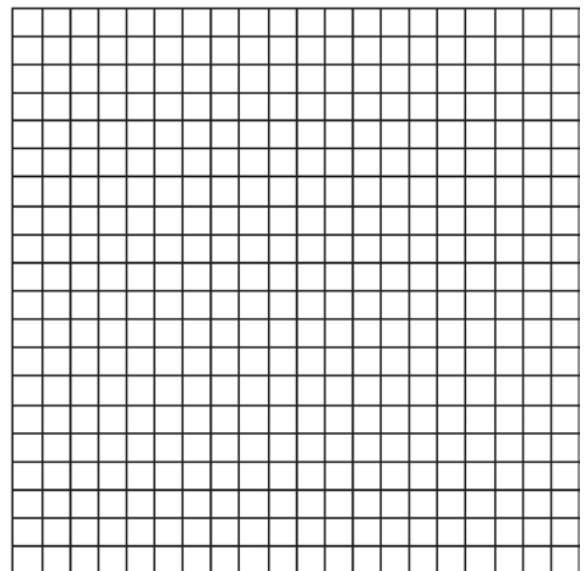
- 10 On the set of axes below, graph $y = 2x^2 - 4x - 6$. State the roots of $0 = 2x^2 - 4x - 6$.



- 11 Greg is in a car at the top of a roller-coaster ride. The distance, d , of the car from the ground as the car descends is determined by the equation $d = 144 - 16t^2$, where t is the number of seconds it takes the car to travel down to each point on the ride. How many seconds will it take Greg to reach the ground?



- 12 An acorn falls from the branch of a tree to the ground 25 feet below. The distance, S , the acorn is from the ground as it falls is represented by the equation $S(t) = -16t^2 + 25$, where t represents time, in seconds. Sketch a graph of this situation on the accompanying grid. Calculate, to the *nearest hundredth of a second*, the time the acorn will take to reach the ground.



F.IF.C.7: Graphing Quadratic Functions Answer Section

- 1 ANS: 3 REF: 061306ia
 2 ANS: 4 REF: 011111ia
 3 ANS: 3 REF: 060924ia
 4 ANS: 2 REF: 080916ia
 5 ANS: 3 REF: 061404ia
 6 ANS: 2 REF: 011506ia
 7 ANS: 3

$$54t - 12t^2 = 0$$

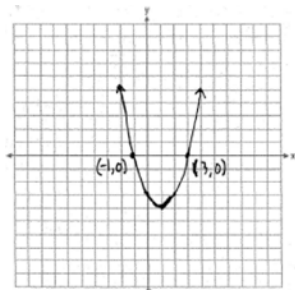
$$6t(9 - 2t) = 0$$

$$6t = 0 \quad 9 - 2t = 0$$

$$t = 0 \quad t = \frac{9}{2}$$

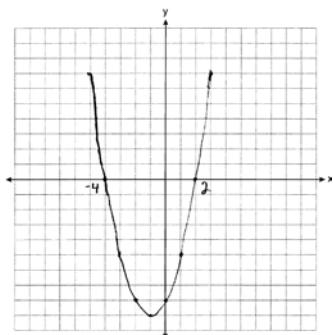
REF: 080112b

- 8 ANS:



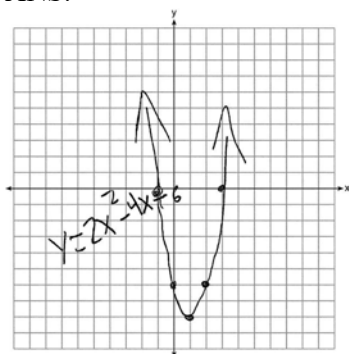
REF: 060836ia

- 9 ANS:



REF: 061234ia

10 ANS:



3 and -1.

REF: 061537ia

11 ANS:

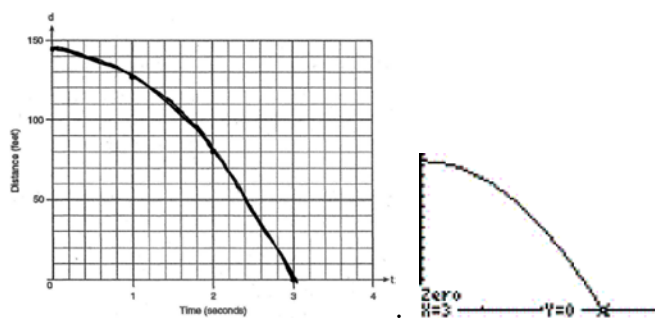
$$144 - 16t^2 = 0$$

$$(12 + 4t)(12 - 4t) = 0$$

3.

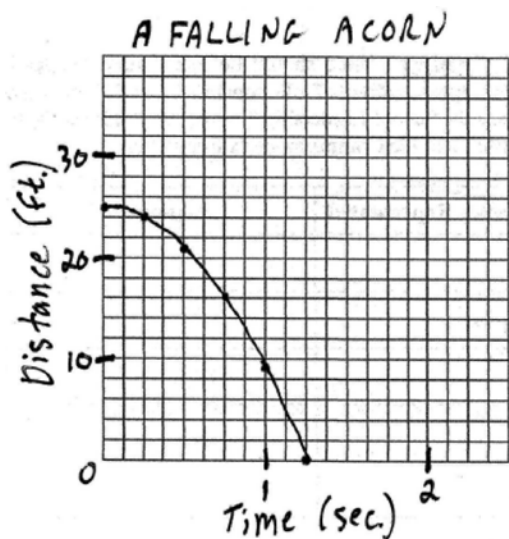
$$12 + 4t = 0 \quad 12 - 4t = 0$$

$$t = -3 \quad t = 3$$



REF: 080234a

12 ANS:



$$0 = -16t^2 + 25$$

$$0 = (-4t + 5)(4t + 5)$$

1.25.

$$0 = -4t + 5 \quad 0 = 4t + 5$$

$$t = \frac{5}{4} = 1.25 \text{ sec.} \quad t \text{ is negative}$$

REF: 010431b