



**THIRD SPACE  
LEARNING**

# Graphing Quadratic Functions Worksheet

Algebra

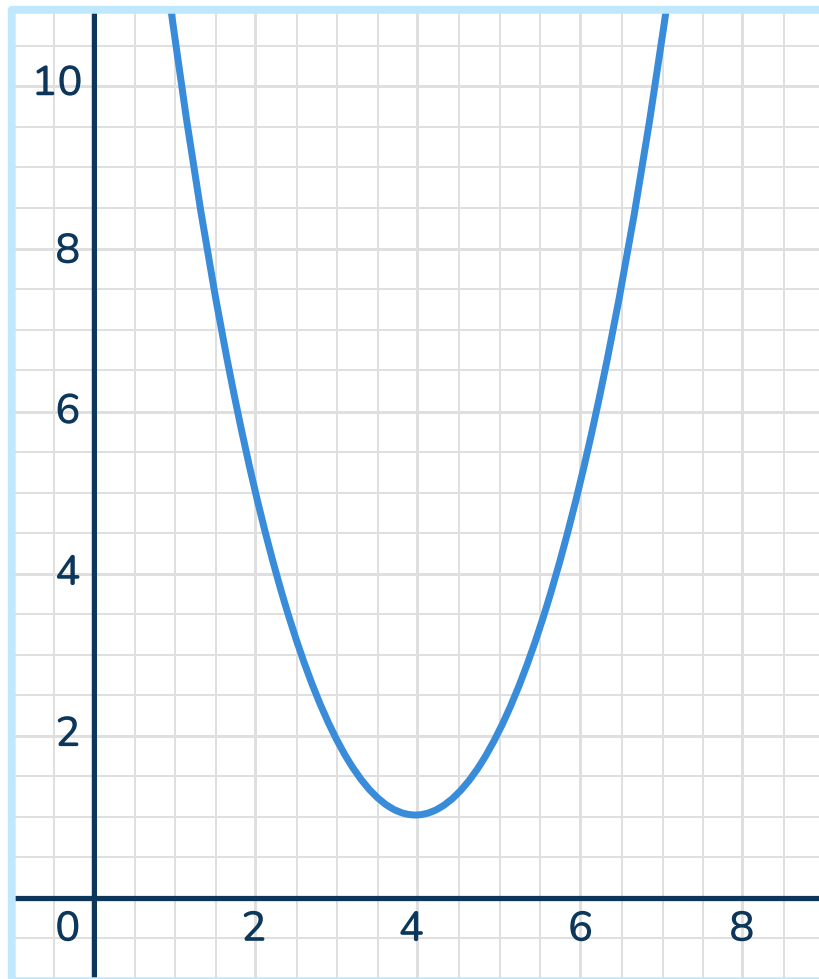
Grades 9 to 12

## Skill Questions

Name: .....

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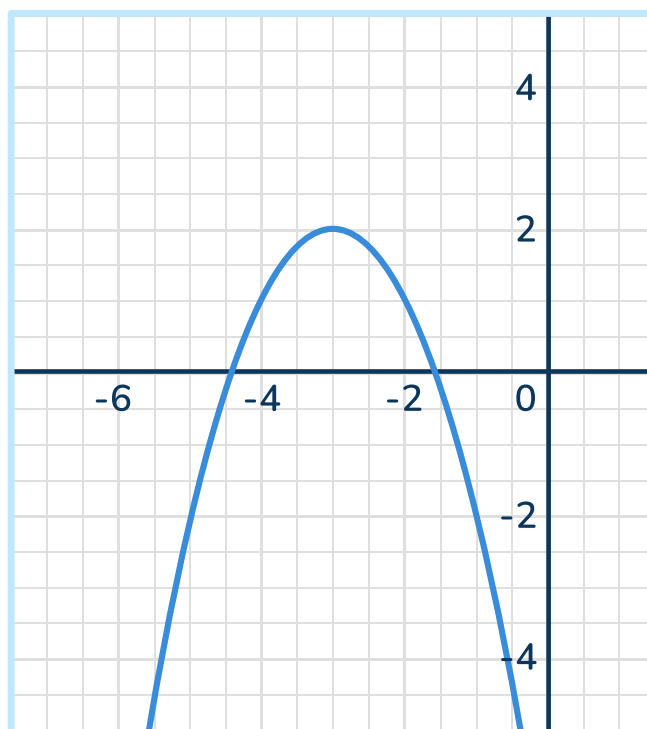
- 1 Identify the vertex and axis of symmetry of the quadratic function below.



Answer

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- 2 Identify the vertex and axis of symmetry of the quadratic function below.



Answer

- 3 What is the vertex of the quadratic function,  $f(x) = x^2 - 5x + 7$ ?

Answer

- 4 Identify the vertex of the quadratic function as a minimum or a maximum.

$$f(x) = -3x^2 + 4x - 1$$

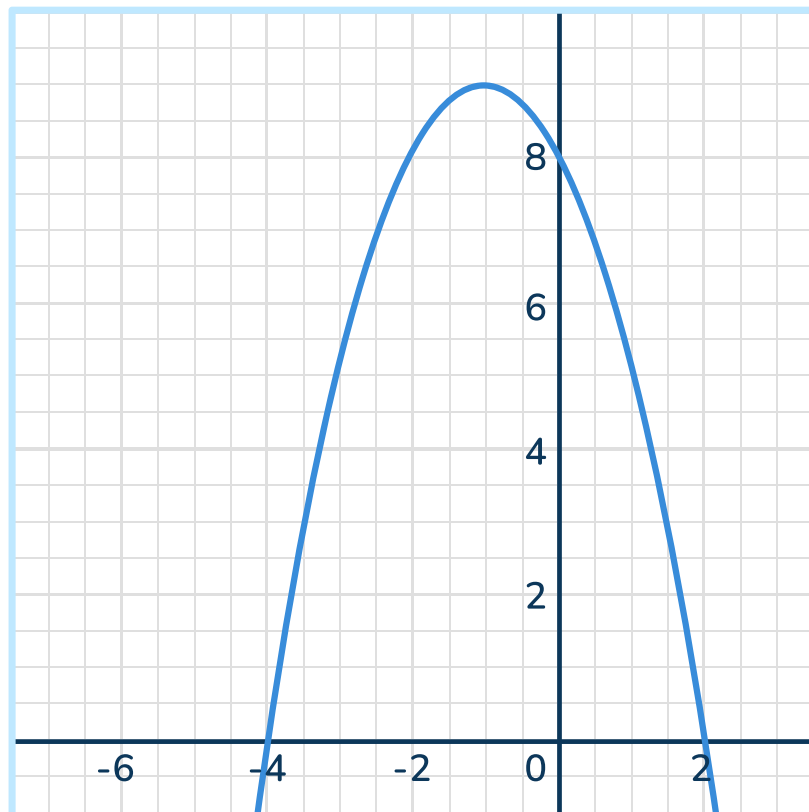
Answer

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- 5 Find the axis of symmetry of the quadratic function,  $f(x) = 2x^2 - 6x$

Answer

- 6 What are the  $x$ -intercepts of the quadratic function graphed below?



Answer

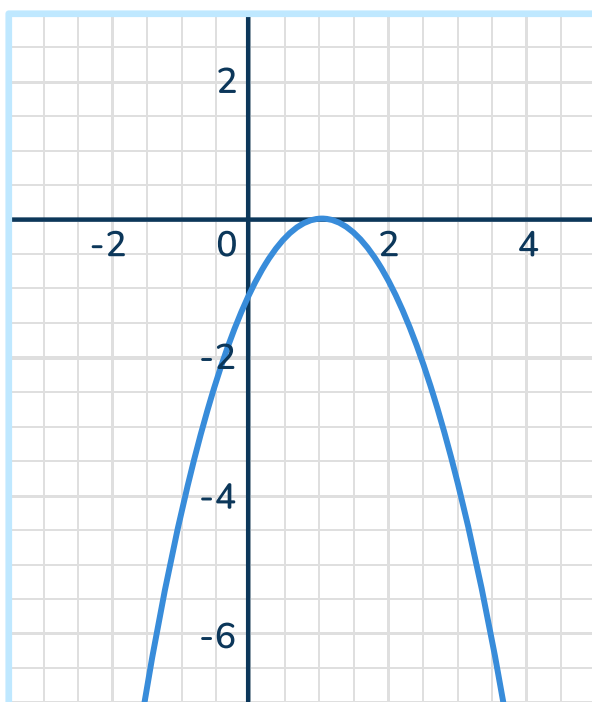
- 7 What are the  $x$ -intercepts of the quadratic function?

$$f(x) = x^2 + x - 72$$

Answer

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- 8 What are the  $x$ -intercepts and vertex of the quadratic function graphed below?



Answer

- 9 Sketch the quadratic equation represented by the function,  
 $f(x) = (x + 0)^2 + 5$

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- 10 Sketch the quadratic equation represented by the function,  
 $f(x) = x^2 - 4x + 3$

## Applied Questions

- 11 A ball is thrown straight up with an initial velocity of 64 ft/s, and represented by the function,  $h = -16t^2 + 64t + 32$ ,  
What is the maximum height of the ball?

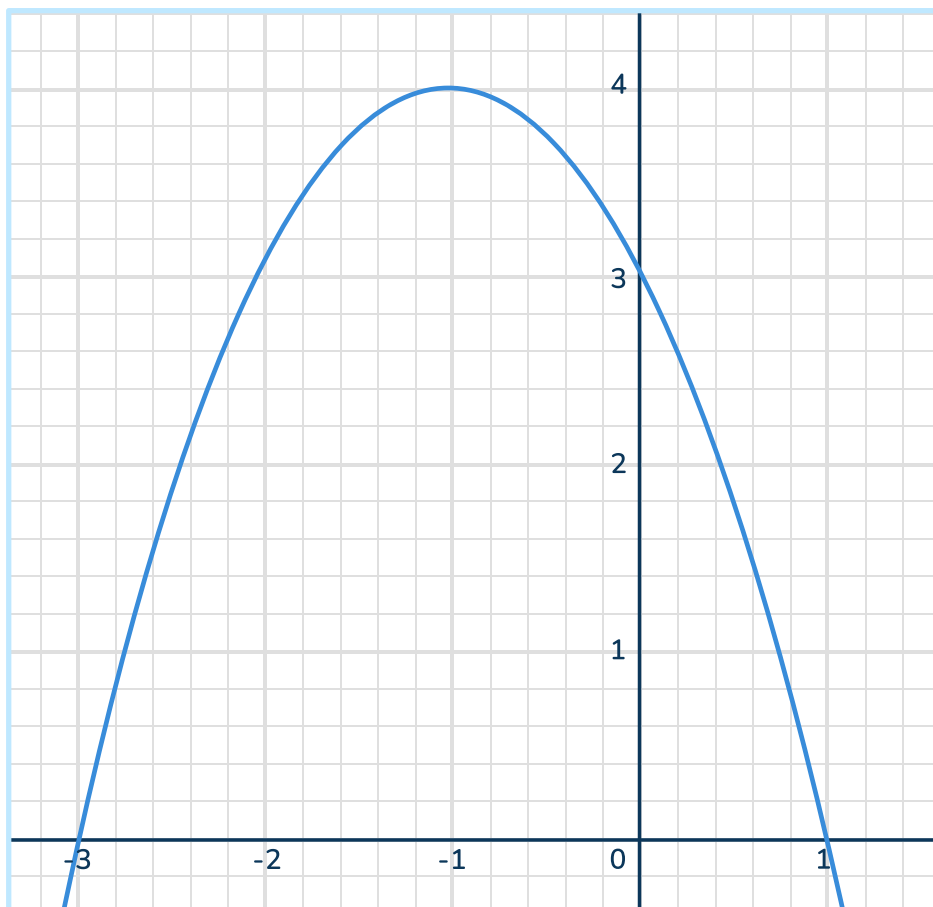
Answer

- 12 A quadratic equation is graphed below.  
A) Write the equation of the quadratic function.

Answer

- B) Find the solutions to the quadratic.

Answer



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- 13 Draw a sketch of a quadratic equation that has  $x$ -intercepts at  $x = 6$  and  $x = -2$  and a vertex that has a maximum value.

- 
- 14 Draw a sketch of a quadratic equation that has an  $x$ -intercept  $x = -5$  and a vertex with a minimum value.



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**15** Sketch the quadratic function,  $y = -x^2 - x + 12$

A) Identify the vertex

Answer

B) Identify the axis of symmetry

Answer

C) Determine if the vertex is a minimum value or maximum value

Answer

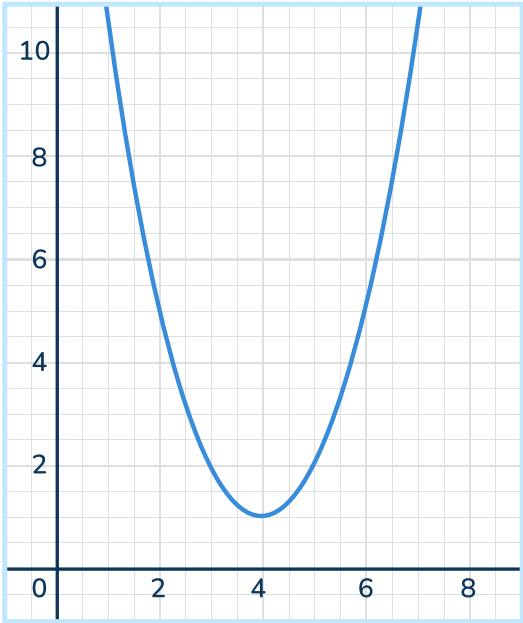
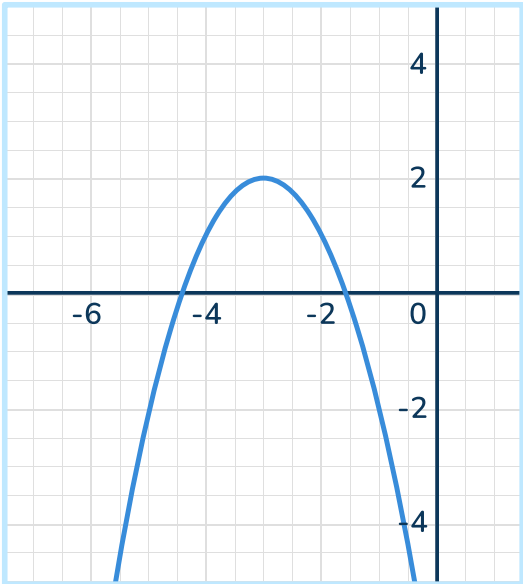
D) Identify the  $y$ -intercept

Answer

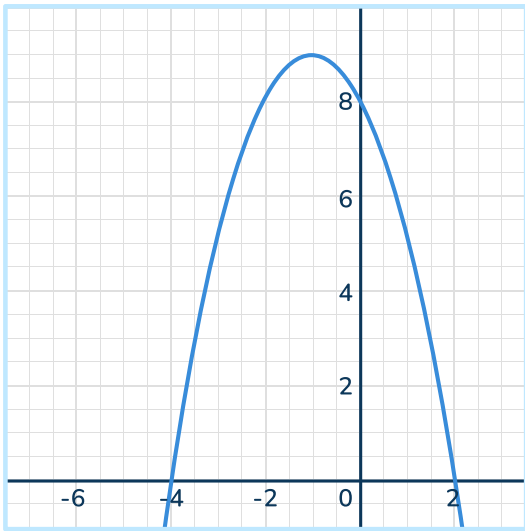
E) Identify the  $x$ -intercepts

Answer

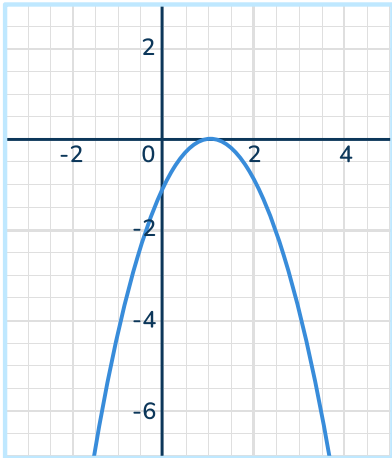
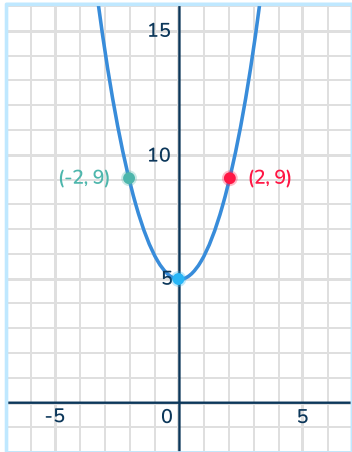
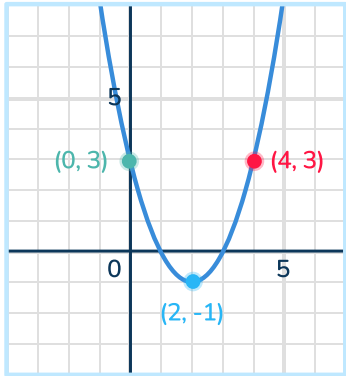
## Answers

Question number	Question	Answers	Standard
1	<p>Identify the vertex and axis of symmetry of the quadratic function below.</p> 	<p>Vertex: (4, 1) Axis of Symmetry: <math>x=4</math></p>	HSF-IF.C.7a
2	<p>Identify the vertex and axis of symmetry of the quadratic function below.</p> 	<p>Vertex: (-3, 2) Axis of Symmetry: <math>x = -3</math></p>	HSF-IF.C.7a

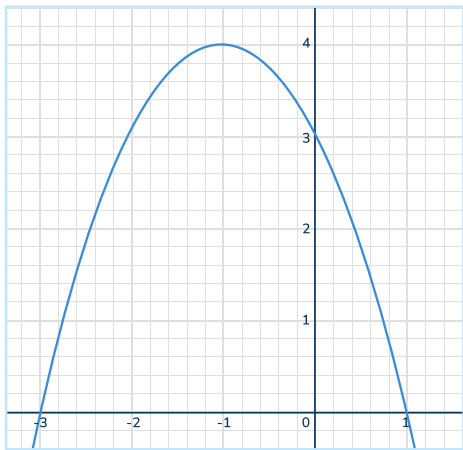
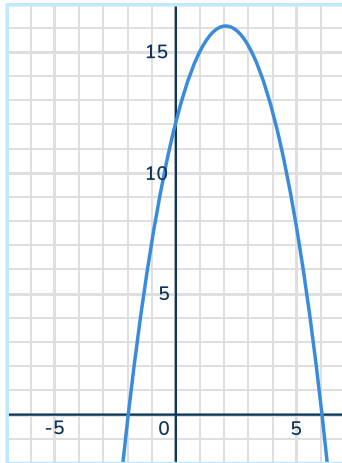
# Graphing Quadratic Functions Worksheet | Grades 9 to 12 | Answers

Question number	Question	Answers	Standard
3	What is the vertex of the quadratic function, $f(x) = x^2 - 5x + 7$ ?	Vertex: $(\frac{5}{2}, \frac{3}{4})$	HSF-IF.C.7a
4	Identify the vertex of the quadratic function as a minimum or a maximum. $f(x) = -3x^2 + 4x - 1$	The vertex of this quadratic will be a maximum point because the “a” value is negative.	HSF-IF.C.7a
5	Find the axis of symmetry of the quadratic function, $f(x) = 2x^2 - 6x$	$x = \frac{3}{2}$	HSF-IF.C.7a
6	What are the $x$ -intercepts of the quadratic function graphed below? 	$x = -4$ and $x = 2$	HSF-IF.C.7a
7	What are the $x$ -intercepts of the quadratic function? $f(x) = x^2 + x - 72$	$x = -9$ and $x = 8$	HSF-IF.C.7a

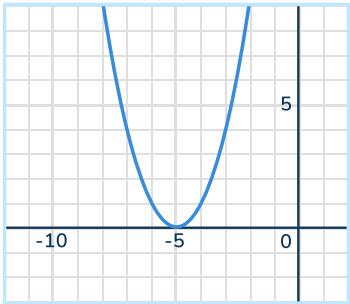
# Graphing Quadratic Functions Worksheet | Grades 9 to 12 | Answers

Question number	Question	Answers	Standard
8	<p>What are the <math>x</math>-intercepts and vertex of the quadratic function graphed below?</p> 	<p>Vertex: (1, 0)  <math>x</math>-intercept (1, 0)</p>	HSF-IF.C.7a
9	<p>Sketch the quadratic equation represented by the function,  <math>f(x) = (x + 0)^2 + 5</math></p>		HSF-IF.C.7a
10	<p>Sketch the quadratic equation represented by the function,  <math>f(x) = x^2 - 4x + 3</math></p>		HSF-IF.C.7a

# Graphing Quadratic Functions Worksheet | Grades 9 to 12 | Answers

Question number	Question	Answers	Standard
11	A ball is thrown straight up with an initial velocity of 64 ft/s, and represented by the function, $h = -16t^2 + 64t + 32$ What is the maximum height of the ball?	96 feet	HSF-IF.C.7a
12	A quadratic equation is graphed below. A) Write the equation of the quadratic function. B) Find the solutions to the quadratic. 	A) $y = -(x + 1)^2 + 4$ B) $x = 1$ and $x = -3$	HSF-IF.C.7a
13	Draw a sketch of a quadratic equation that has $x$ -intercepts at $x = 6$ and $x = -2$ and a vertex that has a maximum value.	Answers vary (sample answer) 	HSF-IF.C.7a

# Graphing Quadratic Functions Worksheet | Grades 9 to 12 | Answers




Question number	Question	Answers	Standard
14	Draw a sketch of a quadratic equation that has an $x$ -intercept $x = -5$ and a vertex with a minimum value.	<p>Answers vary (sample answer)</p> 	HSF-IF.C.7a
15	<p>Sketch the quadratic function, <math>y = -x^2 - x + 12</math></p> <p>A) Identify the vertex B) Identify the axis of symmetry C) Determine if the vertex is a minimum value or maximum value D) Identify the <math>y</math>-intercept E) Identify the <math>x</math>-intercepts</p>	<p>A) Vertex: <math>(-\frac{1}{2}, 12\frac{1}{4})</math> B) Axis of symmetry: <math>x = -\frac{1}{2}</math> C) Vertex is a maximum value D) <math>y</math>-intercept: (0, 12) E) <math>x</math>-intercepts: (-4, 0) &amp; (3, 0)</p>	HSF-IF.C.7a

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