

Pre-Calculus 11 - VLN

Chapter 2: Quadratic Functions

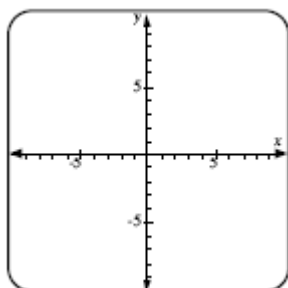
Lesson 2: Graphing Quadratics Continued

Question #1

Reference Q.13717

The graph of a quadratic function has vertex $(3, -4)$ and passes through the point $(4, 1)$.

- Find the equation of the function in standard form.
- Rewrite the equation in general form.
- Use a graphing calculator to sketch the graph and determine the x and y -intercepts of the graph of the function. Answer to the nearest hundredth if necessary.



Question #2

Reference Q.13718

In each case, write an equation in standard form for the parabola with the given vertex and passing through the given point.

- vertex $(7, -6)$, point $(9, -4)$
- vertex $(-2, 5)$, point $(-4, 21)$
- vertex $(-1, 0)$, point $(-5, -12)$
- vertex $(3, -8)$, y -intercept is 10

Question #3

Reference Q.13719

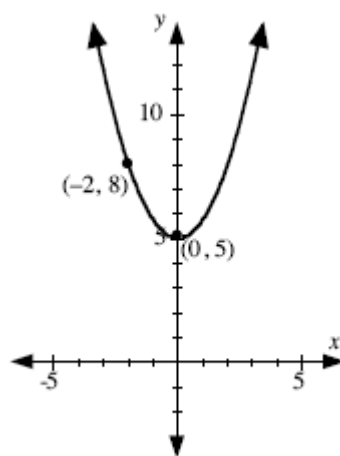
The graph of a quadratic function has a vertex at $(\frac{5}{3}, 1)$ and one x -intercept is $\frac{2}{3}$.

- Determine the equation of the function in standard form.
- Determine the equation of the function in general form.
- State the other x -intercept.
- State the domain and range of the function.
- State the equation of the axis of symmetry of the graph.

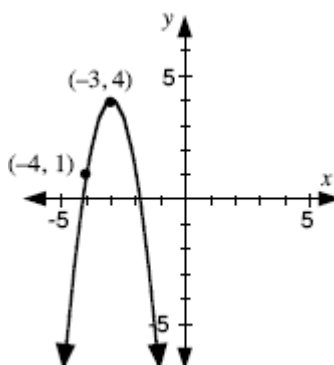
Question #4

Reference Q.13721

Write an equation of the form $y = a(x - p)^2 + q$ for each parabola.



a.



b.

Question #5

Reference Q.13723

The parabola with equation $y = a(x - 2)^2 + q$ passes through the points $(-2, 5)$ and $(4, -1)$.

Determine the coordinates of the vertex of the parabola.

Question #6

Reference Q.13724

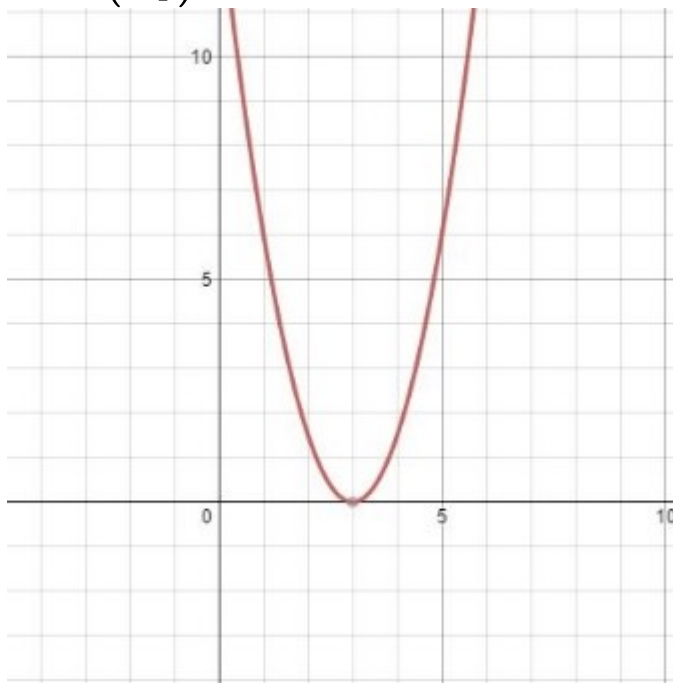
The graph of the function with equation $y = a(x + 5)^2 + q$ passes through the points $(-6, 2)$ and $(-3, 20)$.

Determine whether the function has a maximum or minimum value and state the value.

Question #7

Reference Q.11019

Write the equation of a parabola with vertex $(3, 0)$ that goes through the point $(0, \frac{27}{2})$ and state the key features.



Question #8

Reference Q.11020

Find a quadratic function that has a vertex at $(-2, -4)$ and passes through the origin $(0, 0)$ and get the x and y-intercept(s).

Question #9

Reference Q.11018

What is the equation of the quadratic function graphed below, and what are the x-intercepts?



Question #10

Reference Q.11021

Find the x and y-intercept(s) of $y = (x - 1)^2 - 2$.

Question #11

Reference Q.13720

Determine, as exact values, the x and y -intercepts of the graph of the following functions.

a. $f(x) = (x - 4)^2 - 16$

b. $f(x) = -3(x + 2)^2 + 3$

c. $f(x) = 2(x - 6)^2 - 6$

d. $f(x) = -\frac{1}{4}(x + 1)^2 + 5$

Question #12

Reference Q.13722

A function of the form $p(x) = ax^2 + q$ has two x -intercepts, one of which is 9.

Determine the other x -intercept and explain how you arrived at your answer.

Question #13

Reference Q.13709

Complete the following table.

Function	Vertex	Max/Min Value	Equation of Axis of Symmetry	Domain	Range
$y = 3x^2$					
$y = 2x^2 + 1$					
$y = -(x + 7)^2$					
$y - 10 = (x + 5)^2$					
$y + 3 = -3(x - 1)^2 + 2$					

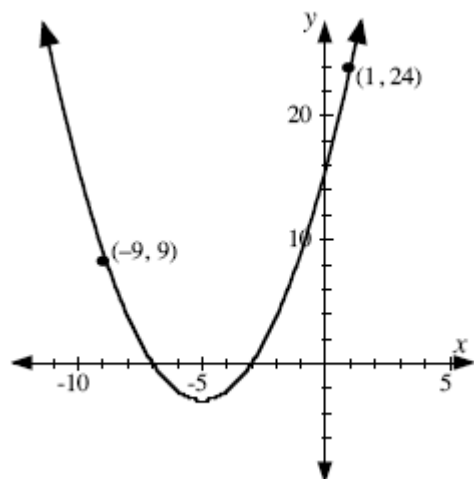
Reminder: $x \in \mathbb{R}$ means: "x is in the set of all real numbers".

Question #14

Reference Q.13725

The graph of a quadratic function is shown.

The equation of the axis of symmetry is $x = -5$.



- Find the equation of the graph of the function in standard form.
- Find, algebraically, the x - and y -intercepts of the graph.
- State the domain and range.

Question #15

Reference Q.13726

The parabola with equation $y = a(x - p)^2 + q$ has a maximum value of 8.

The line $x = 2$ is the axis of symmetry of the parabola. If the graph passes through the origin, then the value of a is

- 2
- $\frac{1}{32}$
- 2
- $-\frac{1}{32}$

Question #16

Reference Q.13727

The graph of the function $g(x) = -2(x - 3)^2 + q$ passes through the point $(-5, -2)$.

The value of q , to the nearest whole number, is ____.

Question #17

Reference Q.13728

The graph of a function of the form $f(x) = a(x + 2)^2 - 7$ has two x -intercepts, one of which is -6.5 . The other x -intercept, to the nearest tenth, is ____.

Question #18

Reference Q.11031

Using a graphing utility, determine the vertex of the parabola

$f(x) = -x^2 + 3x - 12$, and its direction of opening.

Question #19

Reference Q.11024

Using a graphing utility, find the maximum or minimum of

$y = x^2 + 3x - 10$.

Question #20

Reference Q.11025

Using a graphing utility, find axis of symmetry of $y = x^2 + 5x + 8$.

Question #21

Reference Q.13706

Write the coordinates of the image of the point $(-2, 4)$ on the graph $y = x^2$ when each of the following transformations is applied:

- a horizontal translation of 2 units to the left
- a translation of 3 units up and 11 units right

Question #22

Reference Q.13730

After a combination of a horizontal and a vertical translation, the graph of $y = x^2$ has an image graph with a vertex at $(2, -6)$. Describe the translations