

## Vertex Form of a Quadratic Function

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### Learning Objectives

- Find the vertex and graph a parabola from a quadratic function given in vertex form
  - Write the equation of a quadratic function in standard form given the equation in general form
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*Find the vertex and graph a parabola from a quadratic function given in vertex form*

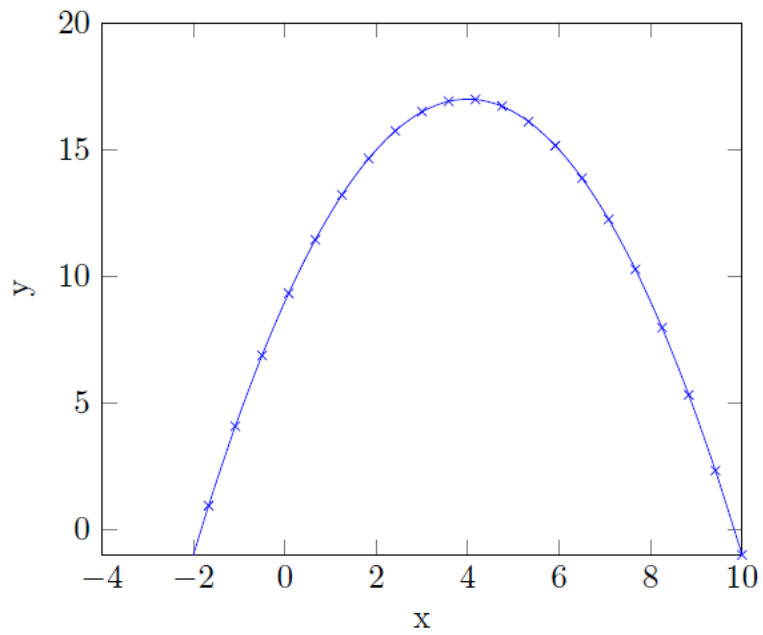
1. Graph the function  $f(x) = -\frac{1}{2}(x - 4)^2 + 17$ . Identify and label the vertex, the axis of symmetry, and any intercepts.

*Write the equation of a quadratic function in standard form given the equation in general form*

2. A parabola is described by the function  $f(x) = 3x^2 - 12x + 1$ . Write the function in vertex form.

- The vertex form of a parabola is  $f(x) = a(x - h)^2 + k$ .
- To complete the square, recall that  $(x + a)^2 = x^2 + 2ax + a^2$ .
- The location of the vertex for a parabola is  $\left(-\frac{b}{2a}, f\left(-\frac{b}{2a}\right)\right)$ .

## ANSWER KEY



1.

2.  $f(x) = 3(x - 2)^2 - 11$