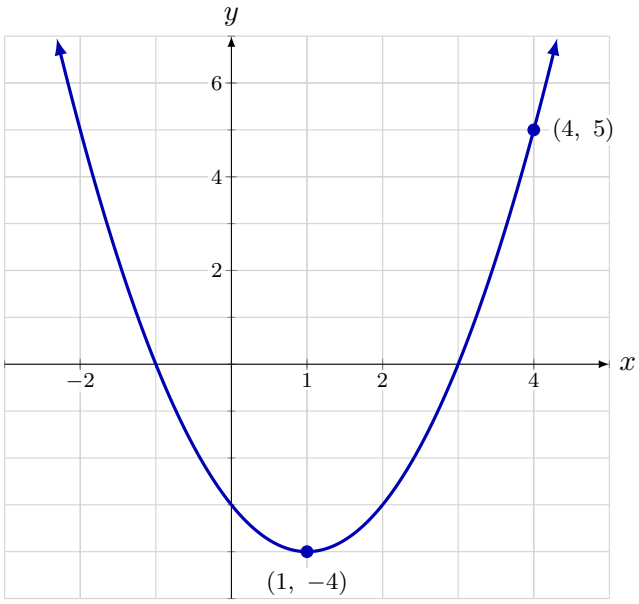
Warmup: Where It Crosses

Adapted from Principles of Mathematics 10, McGraw-Hill Ryerson, 2007.

Work alone or with the person beside you. Show your substitution whenever you find a number.

1. The graph shows a parabola. Its vertex and one more point are labelled.



a) Write an equation for the parabola in vertex form, $y = a(x - h)^2 + k$. Show how you find a.

b) Check your equation with a point on the curve that is not labelled.

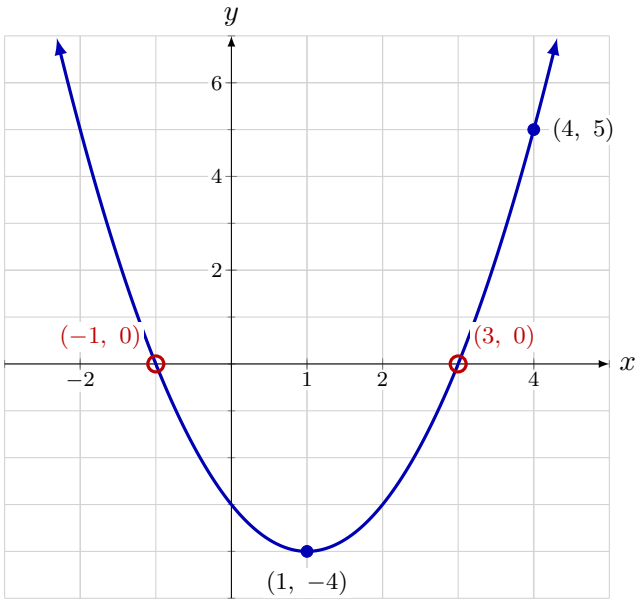
2. Look at the same parabola. Where does it cross the x-axis? Write the points. Then check one of them with your equation.

Warmup: Where It Crosses — Answers

Adapted from Principles of Mathematics 10, McGraw-Hill Ryerson, 2007.

Answers in words are model sentences. Other answers with a clear reason are fine.

1. The graph shows a parabola. Its vertex and one more point are labelled.



a) Write an equation for the parabola in vertex form, $y = a(x - h)^2 + k$. Show how you find a.

The vertex is $(1,\ -4)$, so $y = a(x - 1)^2 - 4$. Substitute $(4,\ 5)$: $5 = a(4 - 1)^2 - 4$, so $9 = 9a$ and $a = 1$.

$y = (x - 1)^2 - 4$. (The steps from the vertex are 1, then 3: the same shape as $y = x^2$.)

b) Check your equation with a point on the curve that is not labelled.

For example, $(0,\ -3)$: $(0 - 1)^2 - 4 = 1 - 4 = -3$. Or $(-2,\ 5)$: $(-3)^2 - 4 = 5$.

2. Look at the same parabola. Where does it cross the x-axis? Write the points. Then check one of them with your equation.

At $(-1,\ 0)$ and $(3,\ 0)$ (circled in red on the graph). Check $x = 3$: $(3 - 1)^2 - 4 = 4 - 4 = 0$. Check $x = -1$: $(-1 - 1)^2 - 4 = 4 - 4 = 0$.