Exercise 76

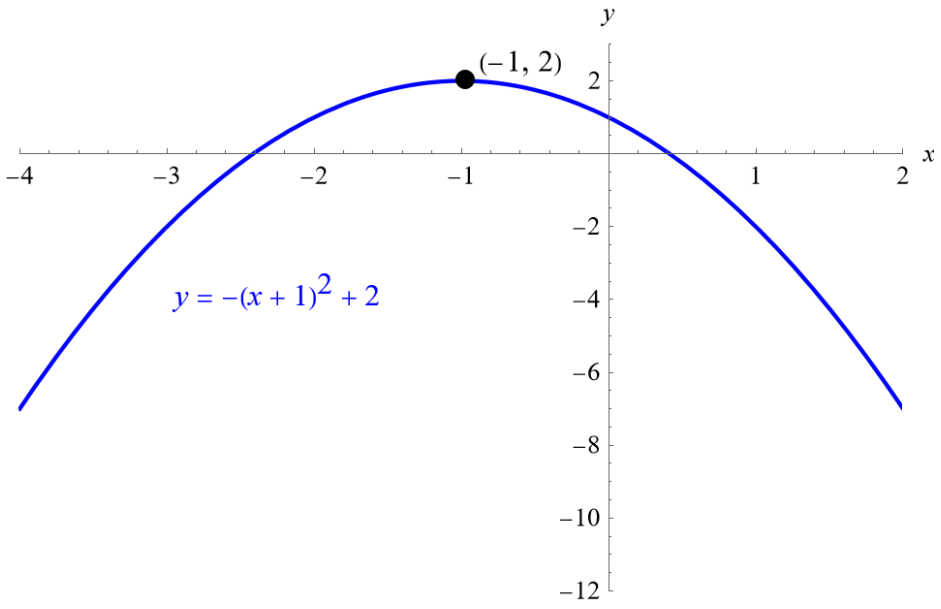
For the following exercises, use the vertex of the graph of the quadratic function and the direction the graph opens to find the domain and range of the function.

Vertex $(-1, 2)$ opens down.

[TYPO: The comma is missing after the given vertex.]

Solution

One possible quadratic function with this vertex and orientation is shown below.



Any x-value can be plugged into a quadratic function, so the domain is

$$\{x \mid -\infty < x < \infty\}.$$

The function has no lowest value, and the highest value it has is 2. Therefore, the range is

$$\{y \mid -\infty < y \leq 2\}.$$