Lesson 6-6

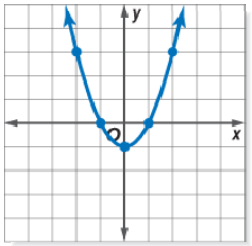
Example 1

Graph $y = x^2 - 1$.

Solution

Make a table with at least five ordered pairs. Include both positive and negative values for x.

x	-2	-1	0	1	2
y	3	0	-1	0	3



Graph the points that correspond to the ordered pairs in the table.

Draw a smooth curve through the points.

Example 2

SPORTS When a soccer ball is kicked straight up into the air, the height of the ball is a function of the time that the ball is in the air. An equation that represents this function is $h = -16t^2 + 64t$, where h is the height in feet and t is the time in seconds since the ball was kicked. Use a graph to find the time when the following occurs.

a. the ball reaches a height of 48 feet

b. the ball reaches its maximum height

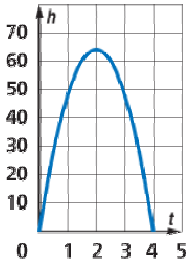
c. the ball hits the ground

Solution

Make a table of ordered pairs. Then draw a graph. Let the horizontal axis represent time and the vertical axis represent height.

t	0	1	2	3	4
h	0	48	64	48	0

a. From the graph, you see when $t = 1$, $h = 48$ and when $t = 3$, $h = 48$. So the ball has a height of 48 feet twice, at 1 sec and at 3 sec.



b. The maximum height of the ball is the h-value at the top of the curve. Maximum height of 64 feet occurs at 2 sec.

c. The ball hits the ground when $h = 0$. So the ball hits the ground in 4 sec.