

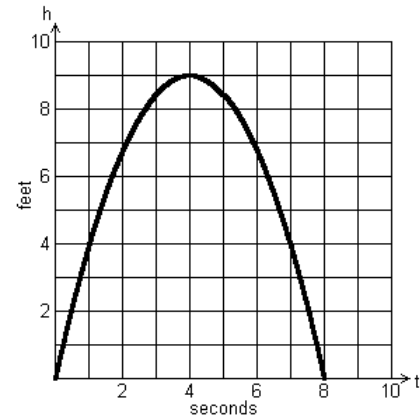
Graphing Quadratic Functions

Example #1

Interpret the following situation.

Jan threw a ball straight up into the air. The graph to the right represents the height (h) of the ball at time (t).

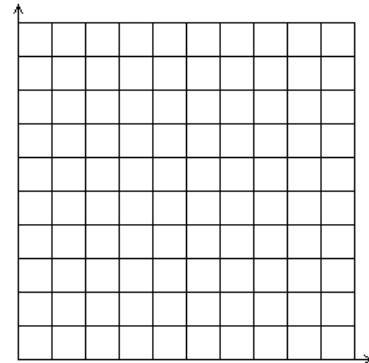
- When is the ball on the ground?
- What is the maximum height of the ball?
- When is the ball at its highest?
- When is the height of the ball 4 feet?
- Approximate the height of the ball at 5 seconds.
- Is the graph a function? If it is a function, find the domain and the range.



Example #2

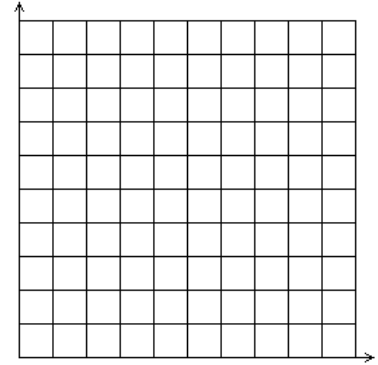
A rocket is launched from ground level with an initial velocity of 224 ft/s. The height h in feet of the rocket at any given time t in seconds is $h(t) = 224t - 16t^2$.

- When will the rocket reach a height of 528 feet?
- When will the rocket reach the ground?
- When will the rocket reach its maximum height?
- What is the maximum height of the rocket?
- Graph this situation.
- State the domain and range of the graph.



1. An object is hurled upward from the ground at an initial velocity of 128 ft/s. The height h in feet of the object at any given time t in seconds is $h(t) = 128t - 16t^2$.

- When will the object reach a height of 192 feet?
- When will the object reach the ground?
- When will the object reach its maximum height?
- What is the maximum height of the object?
- Graph this situation.
- State the domain and the range of the graph.



2. From ground level, an object travels upward with an initial velocity of 240 ft/s. The height h in feet of the object at any given time t in seconds is $h(t) = 240t - 16t^2$.

- Find $h(1)$. Explain the meaning of this question in the context of this problem.
- Find the value of t when $h(t) = 800$. Explain the meaning of this question in the context of this problem.
- Find the value of t when $h(t) = 0$. Explain the meaning of this question in the context of this problem.
- When will the object reach its maximum height?
- What is the maximum height of the object?
- Graph this situation.
- State the domain and the range of the graph.

