

Quadratic Applications

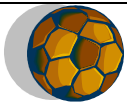
Solve. If necessary, round to nearest tenth.



1. An astronaut standing on the surface of the moon throws a rock upward from 6 feet with an initial velocity of 27 ft/sec. The height of the rock is given by the function $h = -2.7t^2 + 27t + 6$, where h gives the height (feet) of the rock at any time t seconds.

a) What would the height be after 3.5 seconds?

b) How long will it take for the rock to hit the surface of the moon?



1. A ball is thrown into the air with an initial upward at 6 feet with an initial velocity of 34 ft/sec. Its height h in feet after t seconds is given by the function $h = -16t^2 + 34t + 6$.

a) In how many seconds will the ball reach its maximum height?

b) What is the ball's maximum height?

3. In physics, the time t (in seconds) it takes for a dropped object to fall d feet is given by the formula $t = \sqrt{\frac{d}{16}}$

a) How long does it take for an object to fall 1200 feet.

b) If an object falls for 8 seconds, what distance did it fall?



4. A diver on a platform 40 feet in height jumps upward with an initial velocity of 5 ft/sec. His height in h feet after t seconds is given by the function $h = -16t^2 + 5t + 50$.

a) What is his maximum height?

b) How long will it take him to reach the surface of the water?