

Math Plus Honors

Projectile Motion Homework

1. A pumpkin is launched directly upwards at 72 feet per second from a platform 24 feet high. The pumpkin's height, h , at time t seconds can be represented by the equation $h(t) = -16t^2 + 72t + 24$. Find the maximum height of the pumpkin and the time it takes to reach this point.

2. A squirrel is 24 feet up in a tree and tosses a nut out of the tree with an initial velocity of 8 feet per second. The nut's height, h , at time t seconds can be represented by the equation $h(t) = -16t^2 + 8t + 24$. If the squirrel climbs down the tree in 2 seconds, does it reach the ground before the nut?

3. A quarterback throws a football from a height of 6 feet with an initial velocity of 20 feet per second. The height, h , of the ball at time t seconds can be represented by the equation $h(t) = -16t^2 + 20t + 6$. If the ball is caught at 2 feet, find the range of the function.

4. A penny is dropped from the top of the Statue of Liberty, which is 305 feet tall. The height of the penny, h , at time t seconds can be represented by the equation $h(t) = -16t^2 + 305$. After 4 seconds, how much further does the penny need to travel before it hits the ground?