

Word Problems!!

Note: Every quadratic equation you need to solve can be factored!

1. A golf ball's height can be modeled by the equation $h = -16t^2 - 5t + 24$. When will the height be 13 feet?

2. In economics, demand and supply equations are often used to describe sales situations. Let x be the price of a stuffed Flappy Bird in dollars. Suppose its supply equation is $y = 20x + 1400$ and its demand equation is $y = -20x^2 + 1800$. At what price will supply = demand?

3. A tennis ball is thrown upward, and its height can be modeled with the equation $h = t^2 + 2t + 4$. A tennis racket is sweeping down with an equation of $h = 3t^2 + 15t - 3$. When will the tennis racket hit the ball? At what height will the racket hit the ball?

4. A landscaper has enough cement to make a patio with an area of 150 square feet. The homeowner wants the length of the patio to be 5 feet longer than the width. What dimensions should be used for the patio? (Note: The area of a rectangle is length times width.)

5. Joe kicks a ball at Dina and it follows the equation $19x - 2y = 13$, where x is the time and y is the height. Dina kicks a ball from 30 feet away at Joe and it follows the equation $38x - 3y = 48$. In a few seconds, the balls hit each other. At what height do they do this?

6. A toad jumps up from the ground, and its height is modeled by the equation $h = -3t + 32$. A spider monkey at the top of a 45 foot tree sees it and jumps down to catch it. Its height is modeled by the equation $h = -16t^2 + 45$. At what height will the monkey catch the toad?