20.7 Mathematical Model with Quadratic Equations

❖ Solve Applications Involving Parabolas

Ex. A ball is drop-kicked straight up with an initial velocity of 36 feet per second. The equation $h = -16t^2 + 36t$ describes the height, $h$, of the ball in feet $t$ seconds after being kicked.

(a) After how many seconds does the ball reach its maximum height?

(b) What is the maximum height the ball reaches?

Ex. (#7) A farmer decides to enclose a rectangular garden, using the side of a barn as one side of the rectangle. What is the maximum area that the farmer can enclose with 40 ft of fence? What should the dimensions of the garden be in order to yield this area?

Ex. (#16) What is the minimum product of two numbers whose difference is 18? What are the numbers?