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?