Applications of Quadratic Equations Notes Day 2

1. A ball is thrown from a 400-foot tall building. The function $\boldsymbol{h(t) = -16t^2 - 80t + 400}$ gives the height, *h(t)*, of the ball above the ground in feet after *t* seconds.

    a. Determine *h(1)*. What does it mean?

    b. At what time will the ball be about 100 feet above the ground?

2. At a basketball game, T-shirts are launched from a sling shot at a time out. The function for the height of the T-shirt in feet for an initial velocity of 72 ft/s is given by the function $\boldsymbol{h(t) = -16t^2 + 72t + 5}$. How long will it take the T-shirt to reach the maximum height? What is the maximum height?

3. The width of a rectangle is $\boldsymbol{w}$ inches and its length is $\boldsymbol{2w - 4}$ inches. The area of the rectangle is 30 inches.

    a. Using this information, write an equation to find the area.

    b. Set one side of the rectangle equal to 0. Solve for *w*.

    c. What is the length of the rectangle?