Day 04 MODELING QUADRATICS WARM-UP

1. On a fourth down, the Cavs are just out of field goal range. Johnny needs to kick the football high and short. This punt can be modeled by y = -.52x^2 + 2.5x + 15 where x is the distance (in yards) the football is kicked and y is the height (in yards) the football is kicked.

   a. Sketch the graph of the quadratic function and label the axes according to the scenario given.

   b. What is the greatest height of the football?

   c. When will the football be at the highest point?

   d. How high will the ball be in 7.5 yards?

   e. When will the ball hit the ground?

2. A manufacturer of lighting fixtures has daily production cost modeled by y = 0.25x^2 – 10x + 800, where y is the total cost (in dollars) and x is the number of fixtures produced.

   a. Sketch the graph and label the axes according to the scenario given.

   b. What is the minimum daily production cost?

   c. How many fixtures should be produced each day to yield a minimum cost?