Real-World Applications – Creating Equations Day 1

Unit 2B: Quadratic Functions - Modeling

For each of the following:

A. Write the equation that models the given context
B. Identify the x-intercept(s) and tell what they mean
C. Identify the y-intercept and tell what it means
D. Identify the maxima/minima of the function and tell what it means
E. Graph the function

1. Ryan hits a golf ball off a tee that has the ball sitting on the ground. He hits the ball with an initial velocity of 160 feet per second.

2. A group of children are given a bag full of Mega Blocks and asked to construct a figure that will hold the most stuff in it. The children create a figure that is rectangular and is 100 blocks by 40 blocks. When checking with the teacher they were told could make something that will hold more. Since the children used all the blocks whatever they took from the larger side was what they could place on the shorter sides.

3. A farmer's employee went to the top of a grain bin to pull something off that got caught during the last storm we had. The top of the grain bin is 200 foot high and they threw the object downward at 25 feet per second.

4. The FFA is selling boxes of fruit again this year and last year they were selling the large sample boxes for $40 each. The FFA wants to maximize their profit from the large boxes and predict that if they increase their prices by increments of $1 they will lose 5 customers on top of their previous 500 customers.