

Real-World Applications – Day 8
Unit 2B: Quadratic Functions - Modeling

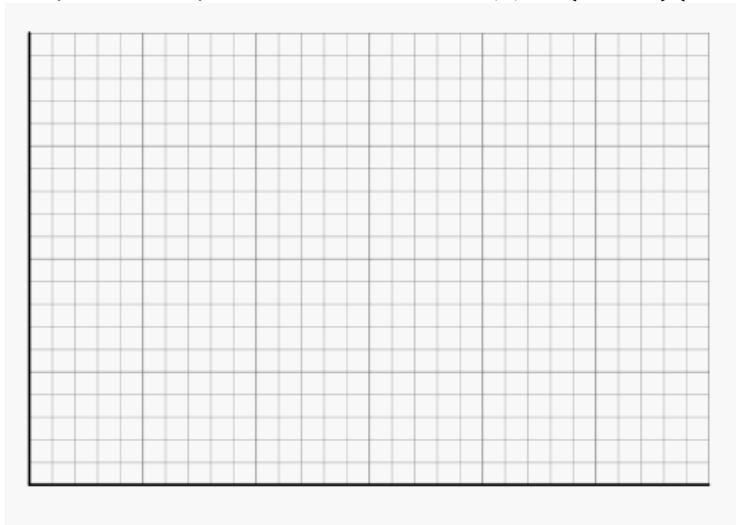
For each of the following:

- A. Identify the x-intercept(s) and tell what they mean**
- B. Identify the y-intercept and tell what it means**
- C. Identify the maxima/minima of the function and tell what it means**
- D. Graph and label the function**

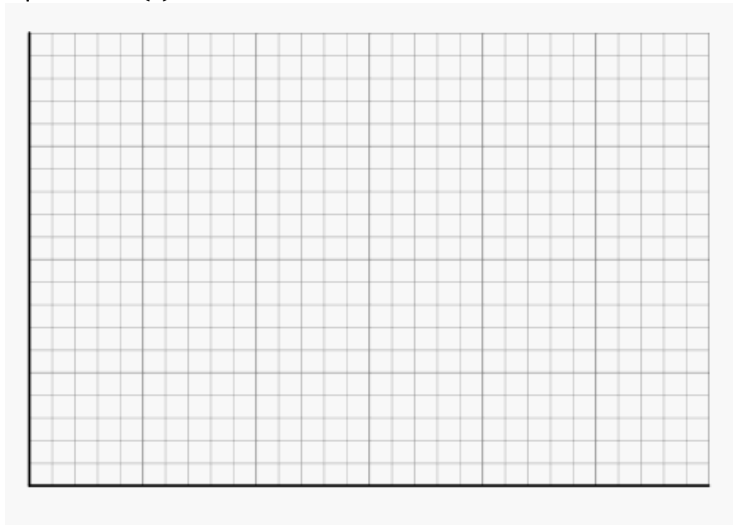
1. Rachel hits a tennis ball at 110 feet per second from a height of 4 foot. The equation that shows the path of the tennis ball is $h(t) = -16t^2 + 110t + 4$.



2. A group of students are given some Legos and asked to construct a figure with the largest area possible. The students create a figure that is rectangular and is 65 blocks by 25 blocks. When checking with the teacher they were told they needed to check the figure again and use this equation to see how many blocks they needed on each side $A(x) = (65 - x)(25 + x)$.



3. Ryan throws a temper tantrum after losing on the new video game that was release and decides to throw him controller to the floor. Ryan is sitting in a bunk bed and releases the controller from 8 foot high throwing it downward at 30 feet per second. The height of the controller can be found by using the equation $h(t) = -16t^2 - 30t + 8$



4. The music boosters are selling calendars for \$20 each and want to increase the price of their calendar by increments of \$1. Mr. Brewer projected that for every dollar increase in the cost of the calendar the boosters would lose 6 of their current 1200 customers. The function that shows the music boosters maximum profit is $C(r) = (20 + r)(1200 - 6r)$

