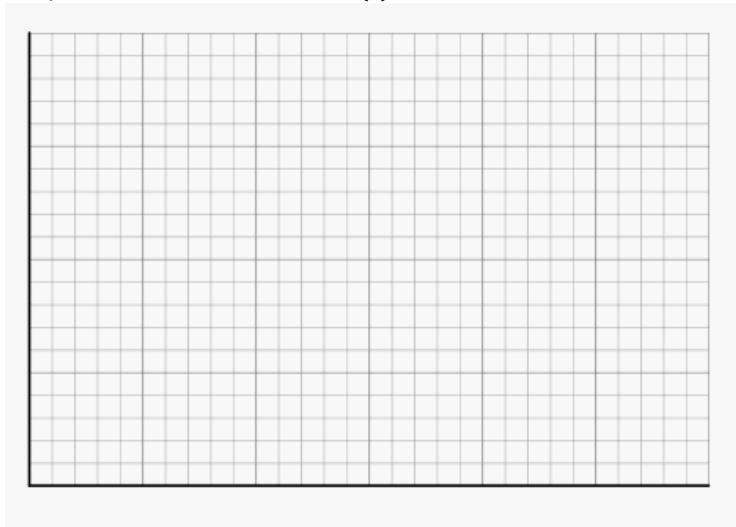


**Real-World Applications – Day 3**  
Unit 2B: Quadratic Functions - Modeling

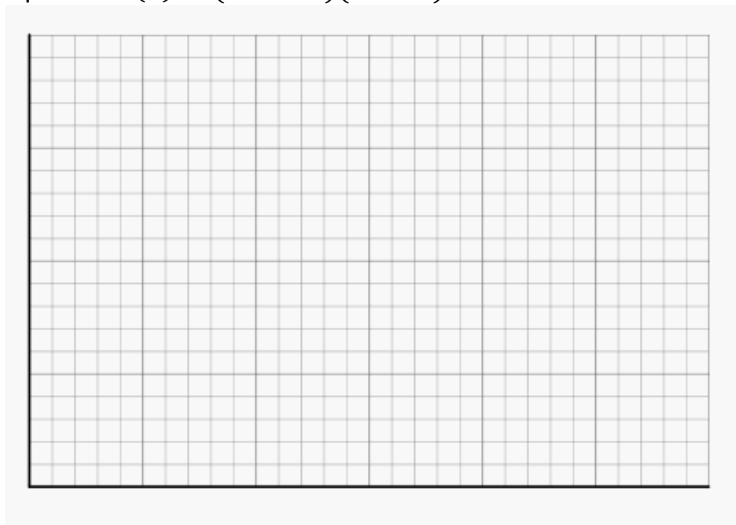
For each of the following:

- 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. Brennan shoots a basketball at 20 feet per second from a height of 8 foot. The equation that shows the path of the basketball is  $h(t) = -16t^2 + 20t + 8$ .



2. The local car dealership is having a massive tent sale and wants to enclose the area in which they will be selling cars to provide all of their customers shade. The area they want to cover is given by the equation  $A(x) = (300 - x)(75 + x)$



3. A coach was sitting up in the stands at the game and realizes that they have something in their pocket that they meant to give to the students before the game. To get the item to the students as quick as possible the coach throws it downward at 12 feet per second and from a height of 200 feet. This is modeled by the equation  $h(t) = -16t^2 - 12t + 200$



4. The Hoopston Chronicle sells their papers for \$1.25 per issue currently. At this rate the paper is selling about 400 papers per week. The paper however needs to increase the price that they are charging for the paper to accommodate for problems that have come up in their office. For every quarter they increase the price of the paper it has been projected that they will lose 23 papers per week in sales. The maximum profit and the amount of increase you should charge is given by the equation  $C(r) = (1.25 + 0.25r)(400 - 23r)$

