

Unit 2B: Quadratic Functions - Modeling
PRE-TEST

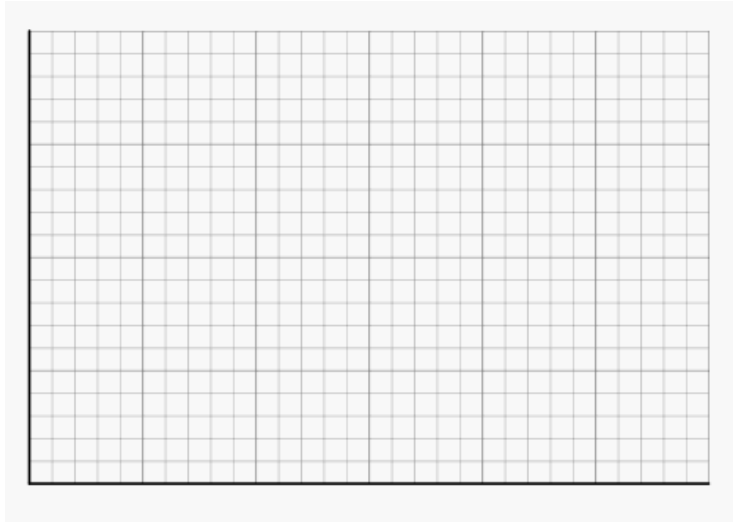
For each of the following:

- A. Write the equation modeled by the given problem
- B. Graph the function labeling the VERTEX and the AXIS OF SYMMETRY
- C. Identify the x-intercept(s) and tell what they mean
- D. Identify the y-intercept and tell what it means
- E. Identify the maxima/minima of the function and tell what it means

1. The local high schools quarterback can throw a football 45 feet per second after releasing it from a height of 7 feet. What is the height of the ball over time?



2. The local paper sells the Sunday newspaper for \$1 each and averages 200 papers. The people in the business office believe that they will lose 20 papers per additional 50 cents charged.



For each of the following:

- A. Write the equation modeled by the given problem
- B. Graph the function labeling the VERTEX and the AXIS OF SYMMETRY
- C. Identify the x-intercept(s) and tell what they mean
- D. Identify the y-intercept and tell what it means
- E. Identify the maxima/minima of the function and tell what it means

3. After the semester is over, you discover that the school has changed textbooks and the bookstore will not buy your book back. For fun you decide to climb to the top of a building overlooking a pool and throw your book into it. You throw the book downward at 26 feet per second from a height of 80 feet.



4. One of the local high school baseball players are playing centerfield and have a ball hit to them. The player gets the ball and throws it toward home plate trying to get the final out of the game. He throws the ball releasing it at a height of 6 feet at a rate of 55 feet per second



Without graphing the following functions identify each of the following:

A. The zeros of the function

B. The axis of symmetry

C. The extreme value

5. $g(x) = x^2 + 19x + 84$

6. $f(x) = x^2 - 12x - 45$

7. $h(x) = x^2 - 8x + 17$

8. $y = 2x^2 + 24x + 25$