Extension: Quadratic Word Problems Part 1 Algebra 2 Kitt

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Period:\_\_\_\_\_\_

**Directions**: *Respond to each of the following word problems.*

1) A ball is thrown straight up with an initial velocity of ,

A. What is the maximum height?

B. What is the height of the ball after 1 second?

2) A ball is thrown upward from the ground. Its height (*h*, in feet) is given by the function , where ***t*** is the length of time (in seconds) that the ball has been in the air. What is the maximum height that the ball reaches?

3) The height, , in feet, of an object shot from a connon with initial velocity of 20 feet per second can be modeled by the equation , where ***t*** is the time, in seconds, after the cannon is fired. What is the maximum altitude that the object reaches?

4) The engine torque ***y*** (in foot-pounds) of one model of car is given by where ***x*** is the speed of the engine (in thousands of revolutions per minute).

A. Find the engine speed that maximizes the torque.

B. What is the maximum torque?

5. When a kangaroo jumps, its path through the air can be modeled by where ***x*** is the kangaroo’s horizontal distance traveled (in feet) and ***y*** is its corresponding height (in feet).

A. How high can a gray kangaroo jump?

B. How far can it jump?

**Directions**: *Solve each polynomial by factoring.*

