Homework: Extension: Applications of Quadratic Functions Algebra 2 Kitt

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

**Directions**: Read and solve each word problem. Describe your solution in the context of the problem.

1. The height in feet of a bottle rocket is given by $h\left(t\right)=160t-16t^{2}$, where ***t*** is the time in seconds. How long will it take for the rocket to return to the ground?

2. Emma hits a golf ball of the tee. The height of the ball is given by $y=-16x^{2}+4013x+3250$ where ***y*** is the height in yards above the ground and ***x*** is the horizontal distance from the tee in yards. How far does Emma hit the ball? What is the maximum height of the ball?

3. The height h in feet of a projectile launched vertically upward from the top of a 96-foot tall tower when $t=0$ is given by $h=96+80t-16t^{2}$. How long will it take the projectile to strike the ground?

4. The formula $h=-16t^{2}+48t+160$ gives the height of an object thrown from a building 160 feet high with an initial speed of 48 ft/sec, where ***t*** is measured in seconds. Find the time for the object to hit the ground.

5. While playing basketball this weekend, Frank shoots an air-ball. The height h in feet of the ball is given by $h=-16t^{2}+32t+8$, how long will it take for the ball to strike the ground?