Algebra 1 WS 9.5C Quadratic Application

1. The height of a diver above the water during a dive can be modeled by $h=-16x^2+8x+48$, where h is the height in feet and x is the time in seconds. Find the time it takes for the diver to reach a point 8 feet above the water.

2. The height of a fireworks rocket launched from a platform 35 feet about ground can be approximated by $h = -5t^2 + 30t + 35$, where h is the height in meters and t is the time in seconds. How high is the rocket after 3 seconds?

3. A golf player hits a golf ball from a tee with initial velocity of 64 feet per second. The height of the golf ball t seconds after it is hit is given by $h = -16t^2 + 64t$. How long is the golf ball in the air?

- 4. Consider the flight of an aircraft used to simulate weightlessness. Its flight path can be approximated by the following equation: $h = -10x^2 + 300x + 9750$, where h is the height in meters and x is the time in seconds.
 - a. After how many seconds will the aircraft land on the ground?

b. What is the altitude after 20 seconds?

c. At what time is the plane at 8500 meters?

- 5. The graph below describes a small business profit as related to the selling cost of the items sold. The profit is represented by the function $f(x) = -2x^2 + 80x$, where f(x) is the total profit and x is the selling cost of the items sold.
 - a. What is the maximum profit for the small business?
 - b. What is the selling cost for a profit of \$600?
 - c. At what point does the function start to decrease? What could be a reason for this decrease to happen?

