Name _____ Quadratic Equation Word Problems

1. Emily is launching a model rocket. If the height h (in meters) of the rocket above the ground at time t seconds is given by the quadratic equation $h(t) = -5t^2 + 20t + 15$, when does the rocket reach its maximum height?

2. Jack is flying a kite at the park. If the height h (in meters) of the kite above the ground at time t seconds is given by the quadratic equation $h(t) = -3t^2 + 12t + 8$, when does the kite hit the ground?

3. Mia is selling tickets to a movie. If she charges $8 per ticket and sells x tickets, but also offers a $10 discount for buying more than 6 tickets, how many tickets did she sell if she earned $60?

4. Ethan is a swimmer diving into a pool. If the height h (in meters) of the dive at time t seconds after diving is given by the quadratic equation $h(t) = -4t^2 + 16t + 10$, when does the diver reach the water?

5. Sophia is shooting basketball hoops. If the height h (in meters) of the basketball above the ground at time t seconds after being shot is given by $h(t) = -2t^2 + 8t + 6$, when does the basketball hit the ground?

6. Lucas is a biologist studying the growth of bacteria in a petri dish. If the number of bacteria n in the dish after t hours is given by the quadratic equation $n(t) = 3t^2 + 12t + 9$, when does the number of bacteria reach its maximum?

7. Olivia is launching a paper airplane. If the height h (in meters) of the airplane above the ground at time t seconds is given by $h(t) = -4t^2 + 20t - 3$, when does the airplane hit the ground?

8. Daniel is a gardener planting rows of vegetables. If he plants x rows of carrots and x - 2 rows of tomatoes, and he plants a total of 8 rows, how many rows of each vegetable did he plant?

9. Sarah is a chef baking cakes. If she needs x cups of flour and 2x cups of sugar, and she needs a total of 18 cups of ingredients, how many cups of flour does she need?

10. Noah is an engineer designing a roller coaster. If the height h (in meters) of a loop-the-loop at a distance x meters from the center is given by $h(x) = -x^2 + 6x + 8$, how far from the center is the highest point of the loop-the-loop?