Algebra II Worksheet #2 Unit 8 page 1

A slingshot was used to launch a small rock upward from a cliff 100 feet above a river. The function $\mathbf{h} = -16t^2 + 96t + 100$ (where $t \ge 0$) gives the height, h, in feet of the rock above the river after t seconds.

1. How high above the river will the rock be after 2 seconds?

2. How high above the river will the rock be after 5 seconds?

3. When will the rock again be 100 feet above the river?

4. When will the rock be 240 feet above the river?

5. How long will it take the rock to hit the river?

Algebra II Worksheet #2 Unit 8 page 2

A slingshot was used to launch a small rock upward from a cliff 100 feet above a river. The function $\mathbf{h} = -16t^2 + 96t + 100$ (where $t \ge 0$) gives the height, h, in feet of the rock above the river after t seconds.

6. What is the maximum height reached by the rock above the river? How long did it take the rock to reach its maximum height?

7. Sketch a graph of this function from t = 0 until the rock hits the river.



Algebra II Worksheet #2 Unit 8 page 3

A company manufactures laboratory scales for pharmacies. They found that their monthly profit, P, depends on the selling price, s, according to the function below. (Assume that both P and s are measured in dollars.)

$$\mathbf{P} = -1.4\mathbf{s}^2 + 980\mathbf{s} - 115,550.$$

- 8. What would be their monthly profit if the selling price was \$200?
- 9. What value of s corresponds to a 'break even point' (where the profit is 0).

10. What value of s corresponds to a maximum profit? What is the maximum profit?

11. Sketch a graph of this function for values of s from 0 to \$600.

