

# Math 1 Quadratic Quiz

1. Jacob is working on his volleyball serve. The rule  $h = 4 + 35t - 16t^2$  gives the height of the volleyball (in feet)  $t$  seconds after he serves it.

a. Explain what the 4 and the 35 in the rule tell you about Jacob's serve.

4:

35:

b. Assuming that nobody touches the ball before it hits the floor, how long is the ball in the air? Show or explain your work.

c. What is the maximum height of the serve and at what time will that occur? Show your work or explain your reasoning.

*Maximum height of \_\_\_\_\_ occurs \_\_\_\_\_ seconds after the ball is served.*

d. The top of the net is 7.5 feet high. At what times is the ball at least 7.5 feet above the floor? Show your work or explain your reasoning.

2. Jasmine threw a softball in from the outfield. The table below gives the time since the ball was thrown (in seconds) and the height of the ball (in feet).

<b>Time (in seconds)</b>	0	0.5	1.0	1.5	2.0	2.5
<b>Height (in feet)</b>	5	23.5	34	36.5	31	17.5

a. Bobby is trying to figure out a function rule that will match this data. He wants the rule to be of the form  $h = -16t^2 + bt + c$ . Find the values for  $b$  and  $c$  that Bobby should use in his rule. Explain your reasoning or show your work.

$b =$  \_\_\_\_\_

$c =$  \_\_\_\_\_