APPLICATIONS WITH PARABOLIC FUNCTIONS

1. Using the graph at the right, It shows the height *h* in feet of a small rocket *t* seconds after it is launched. The path of the rocket is given by the equation: h = -16t2 + 128t.

50

1

100

150

200

250

2

3

4

5

6

7

8

time (seconds)

h (height (feet))

1. How long is the rocket in the air? \_\_\_\_\_\_\_\_\_
2. What is the greatest height the rocket reaches? \_\_\_\_
3. About how high is the rocket after 1 second? \_\_\_\_\_\_\_
4. After 2 seconds,

* About how high is the rocket?\_\_\_\_\_\_\_\_\_
* Is the rocket going up or going down? \_\_\_\_\_\_\_\_

1. After 6 seconds,

* About how high is the rocket? \_\_\_\_\_\_\_
* Is the rocket going up or going down? \_\_\_\_\_\_\_

1. Do you think the rocket is traveling faster from 0 to 1 second or from 3 to 4 seconds? Explain your answer.
2. Using the equation, find the **exact** value of the height of the rocket at 2 seconds.
3. A ball is thrown in the air. The path of the ball is represented by the equation h = -t2 + 8t. Graph the equation over the interval 0 ≤ t ≤ 8 on the accompanying grid.

Time (seconds)

Height (meters)

1. What is the maximum height of the ball?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. How long is the ball above 7 meter? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_