

Name: \_\_\_\_\_ Period: \_\_\_\_\_

## Unit 7B Review for the Test

Read each situation. Then answer the questions about each situation. Show work!

1. A firework is launched straight up into the air from a platform. Its altitude is modeled by  $h(t) = -16t^2 + 112t + 2$ , where  $t$  is the time in seconds and  $h(t)$  is the height of the firework in feet.

- a. Define your variables.

$$x = t = \underline{\hspace{10cm}}$$

$$y = h(t) = \underline{\hspace{10cm}}$$

- b. Sketch a rough graph of the cost equation. Be sure to label your axes. Use the  $y$ -intercept and the direction of opening to help draw the graph.

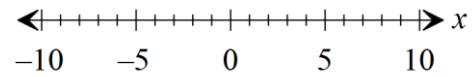
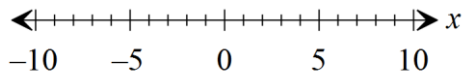


- c. How high is the firework after 2 seconds? Show your work.
- d. What is the maximum height of the firework? Show your work.
- e. How long does it take for the firework to return to the ground? Round to the nearest hundredth. Show your work. (Hint: Use quadratic formula.)

Solve each inequality. Write your answer in interval notation. Draw a rough sketch of a graph for each problem. Show your work.

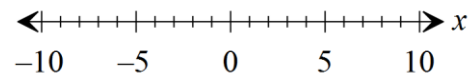
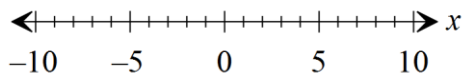
2.  $(x-9)(x+8) \leq 0$

3.  $x^2 - 7x > 0$



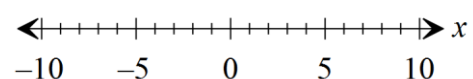
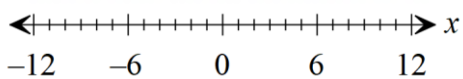
4.  $x^2 - 100 \geq 0$

5.  $x^2 + 8x + 7 < 0$



6.  $x^2 - 14x \geq -24$

7.  $x^2 - 27 < 6x$

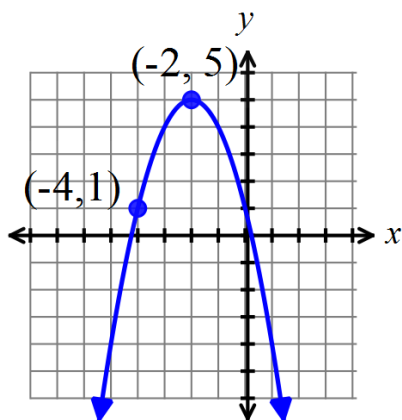


Write a quadratic function for each parabola using the given information. Use the appropriate formula for the given information. Show your work.

8. Vertex:  $(4,3)$ ; passes through  $(2,5)$

9. Roots:  $(-1,0)$  &  $(3,0)$ ; passes through  $(4,-15)$

10.



11.

