Secondary Math 2	Name
6.2 Switching Forms and Quadratic Application	ations Date Period
Write each equation in intercept form.	
1) $y = x^2 + 6x + 5$ 2)	$y = -2x^2 + 16x - 30$

3)
$$y = -(x-2)^2 + 4$$

4) $y = (x+4)^2 - 4$

Write each equation in standard form.

5) y = -2(x+7)(x-1)6) y = 3(x+2)(x-4)

7) $y = (x + 2)^2 - 1$ 8) $y = 2(x + 1)^2 + 1$

Write each equation in vertex form.

9)
$$y = x^2 + 4x + 2$$

10) $y = -2x^2 - 16x - 36$

11)
$$y = (x - 1)(x + 5)$$

12) $y = -(x - 2)(x - 8)$

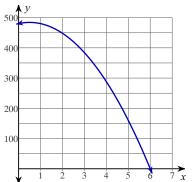
Answer each question.

- 13) A rocket is launched from atop a 192 foot cliff with an initial velocity of 64 ft/s represented by the equation $h = -16t^2 + 64t + 192$.
 - a. What is the maximum height of the rocket?
 - b. How long will it take the rocke to reach it's maximum height?
 - c. How high is the rocket after 2.5 seconds?
 - d. How long will it take the rocket to hit the ground after it is launched?
- 14) You are trying to dunk a basketball. You need to jump 2.5 feet in the air to dunk the ball. The height that your feet are above the ground is given by the function $h = -16t^2 + 12t$.
 - a. What is the maximum height your feet will be above the ground?
 - b. Will you be able to dunk the basketball? Explain.

- 15) A diver is standing on a platform 24 feet above the pool. He jumps from the platform with an initial upward velocity of 8 ft/s. Use the formula $h = -16t^2 + 8t + 24$, where *h* is his height above the water, and *t* is the time.
 - a. What is the maximum height of the diver?
 - b. How long did it take the diver to reach the maximum height?
 - c. How long will it take for him to hit the water?
- 16) One of the games at a carnival involves trying to ring a bell with a ball by hitting a lever that propels the ball into the air. The height of the ball is modeled by equation $h = -16t^2 + 38t$.
 - a. What is the maximum height the ball will reach?
 - b. If the bell is 25 feet above the ground, will it be hit by the ball?

Use the graph in the problem to answer each question.

- 17) Jason jumped off of a cliff into the ocean in Acapulco while vacationing with some friends. His height as a function of time could be modeled by the function below. where x is the time in seconds and h is the height in feet.
 - a. Estimate how long it took Jason to reach his maximum height?
 - b. What was the highest point that Jason reached?
 - c. Jason hit the water after how many seconds?



d. About what was Jason's height after 2.5 seconds?