

## Chapter 6—Solve by Graphing DAY 2

Use the vertical motion model  $h(t) = -16t^2 + vt + c$  where  $h$  = approximate height in feet,  $t$  = time in motion (in seconds),  $v$  = initial upward velocity (in feet per second), and  $c$  = initial height (in feet). Circle the correct answer, but **show your work!** Remember time can never be negative!

- A basketball player shoots the ball with an initial upward velocity of 20 ft/s. The ball is 6 ft above the floor when it leaves her hands. How long will it take for the ball to reach the rim of the basket, 10 ft above the floor, on its way down?
  - 1.0 second
  - .25 second
  - 1.3 seconds
  - 6 seconds
  - 2.5 seconds
- In slow-pitch softball, the pitcher pitches the ball to the batter in a high arc. Suppose a ball leaves the pitcher's hand when it is 2.5 feet above the ground with an upward velocity of 27 ft/s. The batter hits the ball when it is 3.5 feet above the ground. How much time lapses between the pitch and the hit?
  - 1 second
  - 5 seconds
  - 1.6 seconds
  - 2 seconds
  - 0.03 seconds
- Josh is hitting baseballs. When he tosses the ball in into the air, his hand is 5 feet above the ground. He hits the ball when it falls back to the height of 4 feet. If the initial velocity is 25 ft/s, how much time passes before he HITS the ball (at 4 feet above the ground)?
  - 1.8 seconds
  - 4.6 seconds
  - 12 seconds
  - 1.6 seconds
  - 2.2 seconds
- The height  $h$  in feet of a projectile launched vertically upward from the top of a 96-foot tall tower. If the initial upward velocity is 80 ft/s. How long will it take for the rocket to hit the ground?
  - 3.5 seconds
  - 1 seconds
  - 2.1 seconds
  - 4 seconds
  - 6 seconds
- An object is thrown from a building 160 ft high with an initial upward velocity of 48 ft/s, where  $t$  is measured in seconds. Find when the object to hit the ground.
  - 2 seconds
  - 9 seconds
  - 2 seconds
  - 5 seconds
  - 30 seconds
- While playing basketball this weekend, Frank shoots an air-ball. Frank is 6 feet tall and the ball has an initial upward velocity of 32 ft/s. How long will it take for the ball to hit the ground?
  - 8 seconds
  - 2.2 seconds
  - 0.5 seconds
  - 0.2 seconds
  - 6 seconds