

Name _____

9-4A Lesson Master**Questions on SPUR Objectives**

See pages 576–579 for objectives.

USES Objective D

1. Suppose the height h of a ball versus time t is given by the formula $h(t) = -16t^2 + 23t + 6$.
 - a. Is the height of the ball being measured in feet or meters? _____
 - b. At what height was the ball released? _____
 - c. What was the initial upward velocity of the ball? _____

2. Mourette is a member of her high school golf team. She hits a golf ball off the ground with an initial upward velocity of 60 meters per second.
 - a. Write a formula describing the height h of the ball (in meters) after t seconds. _____
 - b. After how many seconds, to the nearest tenth, will the golf ball land on the ground? _____
 - c. What is the maximum height the golf ball reaches? _____

3. Suppose a soccer ball is kicked off of the ground with an initial upward velocity of 73 feet per second at the same time a baseball is released from a height of 5 feet 6 inches with an initial upward velocity of 24 feet per second.
 - a. Which ball will stay in the air longer? Justify your answer.

 - b. Which ball will reach a higher point? Justify your answer.

4. During Super Bowl XXXIII, Denver Bronco quarterback John Elway threw an 80-yard pass (longest of his career) to Rod Smith. Suppose Elway released the ball from a height of 6 feet 3 inches and that the maximum height the ball reached was 8 feet and this occurred 38 yards away from Elway.
 - a. What is a third point that can be assumed on the path of the football from Elway to Smith? _____
 - b. Use the three points and quadratic regression to find a formula for the height of the football in feet based on the yards it is from Elway. _____
 - c. At about what height did Rod Smith catch the football? _____