

Name _____

6-5A Lesson Master**Questions on SPUR Objectives**

See Student Edition pages 446–449 for objectives.

SKILLS Objective B

1. Find a number to make a perfect square trinomial on the left side of the equation, then rewrite the expression as the square of a binomial on the right side.

a. $x^2 + 12x + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

b. $v^2 - 4v + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

c. $t^2 + 5t + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

d. $x^2 - x + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

In 2–5, find an equation in vertex form equivalent to the given equation.

2. $y = x^2 + 12x + 30$

3. $y = x^2 - 10x - 12$

4. $y = 3x^2 + 24x + 60$

5. $y = -2x^2 - 10x - 8$

USES Objective I

6. Merrill kicks a soccer ball so that its height h (in feet) after t seconds is given by $h = -16t^2 + 40t$.

a. Convert the equation to vertex form. _____

b. Find the maximum height the ball reaches. _____

c. After how many seconds does the ball reach the maximum height? _____

7. A software company is deciding what price to charge for a new game. They estimate that if they charge \$30, they will sell 100,000 copies, and that for every \$1 price increase they will sell 2000 fewer copies. Let n be the number of \$1 increases above \$30.

a. Write the price of each game in terms of n . _____b. Write the number of copies sold in terms of n . _____c. Write the software company's total income I as a function of n . _____

d. Convert your answer for Part c to vertex form. _____

e. What price should the company charge to maximize its income? _____