

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

Modeling with Linear Equations

**For each problem: define the variable, write the equation and solve.**

1. Find the two consecutive integers whose product is 5 less than the square of the smaller number.
  
  
  
  
  
  
  
  
  
  
2. A picture frame has a total perimeter of 2 meters. The height of the frame is 0.62 times its width.
  - a) Write  $h$  in terms of  $w$  and write an equation for the perimeter in terms of  $w$ .
  
  
  
  
  
  
  
  - b) Find the dimensions of the picture frame.
  
  
  
  
  
  
  
  
  
  
3. Suppose you are taking a course that has four tests. The first three tests are 100 points each and the fourth test is 200 points. To get an A in the course, you must have an average of at least 90% on the four tests. Your scores on the first three tests were 87, 92, and 84. What must you score on the fourth test to get an A (90%) for the course?
  
  
  
  
  
  
  
  
  
  
4. Students are traveling in two cars to a football game 135 miles away. The first car leaves on time and travels at an average speed of 45 miles per hour. The second car starts  $\frac{1}{2}$  hour later and travels at an average speed of 55 miles per hour. How long will it take the second car catch up to the first car before the first car arrives at the game? Will the second car catch up to the first car before the first car arrives at the game?

