9.4 In-class Practice Math 085

1. Solve for the indicated variable.

   a) $A = 4\pi r^2$, for r

   b) $F = \frac{Gm_1m_2}{r^2}$, for r

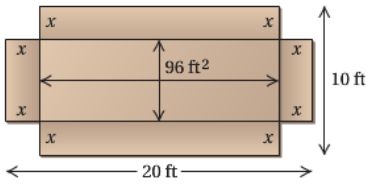
   c) $a^2 + b^2 = c^2$, for b

   d) $T = 2\pi\sqrt{\frac{L}{g}}$, for g

   e) $N = \frac{k^2-3k}{2}$, for k

   f) $A = \pi r^2 + \pi rs$, for r

2. An open box is to be made from a 10-ft by 20-ft rectangular piece of cardboard by cutting a square from each corner. The area of the bottom of the box is to be 96 ft^2. What is the length of the sides of the squares that are cut from the corners?



3. The hypotenuse of a right triangle is 25 m long. The length of one leg is 17 m less than the other. Find the lengths of the legs.

4. Katie's Nissan Altima travels 280 mi. If the car had gone 5 mph faster, the trip would have taken 1 hr less. Find Katie's speed.

5. The Hudson River flows at a rate of 3 mph. A patrol boat travels 60 mi upriver and returns in a total time of 9 hr. What is the speed of the boat in still water?

6. The formula $P = \frac{A}{(1+r)^2}$ can be used to determine the amount, P, that must be invested in an account with an average interest rate r (in decimal form), compounded annually, in order to have A dollars at the end of two years. If an account with an initial investment of \$10,000 has \$11,290 after two years, find the interest rate to the nearest tenth of a percent.

7. Working alone, it takes an inexperienced gardener 45 min longer than an experienced gardener to mow a client's lawn. If the two gardeners work together, they can mow the lawn in 30 min. Find the time it takes each gardener working alone to mow the lawn.

8. A ball is projected upward from the ground. Its distance, in feet, from the ground in t seconds is given by $s(t) = -16t^2 - 128t$. At what times will the ball be 213 ft from the ground?