

Solving Word Problems

Write the equations for each system.

- 1- Two circles have circumferences that add up to 12π centimeters and areas that add up to 20π square centimeters.
- 2- A farmer has 300 feet of fence available to enclose a 4500 square foot region in the shape of adjoining squares, with sides of length x and y . (Note: the shape is similar Utah's shape, but they are squares instead of rectangles.)

Write the equations for each system and then solve.

- 3- The difference of two numbers is 2 and the sum of their squares is 10. Find the numbers.
- 4- The product of two numbers is 4 and the sum of their squares is 8. Find the numbers.
- 5- The perimeter of a rectangular floor is 90 feet. Find the dimensions of the floor if the length is twice the width.
- 6- The perimeter of a rectangle is 16 inches and its area is 15 square inches. What are its dimensions?

- 7- Four large cheeseburgers and two shakes cost a total of \$7.90. Two shakes cost \$0.15 more than one cheeseburger. What is the cost of a cheeseburger? A shake?
- 8- A movie theater charges \$9 for adults and \$7 for senior citizens. On a day when 325 people paid admission the total receipts were \$2495. How many who paid were adults? How many were seniors?
- 9- A store sells cashews for \$5 per pound and peanuts for \$1.50 per pound. The manager decides to mix 30 pounds of peanuts with some cashews and sell the mixture for \$3 per pound. How many pounds of cashews should be mixed with the peanuts so that the mixture will produce the same revenue as would selling the nuts separately?
- 10- A caterer is making an ice cream punch by combining fruit juice and ice cream. The juice costs \$2.25 per gallon and the ice cream costs \$3.25 per gallon. She has 20 gallons of juice and needs to determine how much ice cream she should add so that the punch will cost \$2.50 per gallon. How much ice cream should she add?
- 11- With a tail wind, a small Piper aircraft can fly 600 miles in 3 hours. Against this same wind, the Piper can fly the same distance in 4 hours. Find the average wind speed and the average airspeed of the Piper.
- 12- Pamela requires 3 hours to swim 15 miles downstream on the Illinois River. The return trip upstream takes 5 hours. Find Pamela's average speed in still water. How fast is the current?
- 13- The average airspeed of a single engine aircraft is 150 miles per hour. If the aircraft flew the same distance in 2 hours with the wind as it flew in 3 hours against the wind, what was the wind speed?
- 14- A rowing team rows about 6 meters per second on still water. They decide to explore a local river with little current. It takes them about 20 minutes to row upstream to a location of their choice and 15 minutes for the return trip down stream. What is the speed of the river?