A2T HW on Systems of Equations Word Problems

1. A promoter priced tickets to a concert as follows: $17 when purchased in advance and $20 when purchased at the door. The total number of tickets purchased was 514, and ticket sales totaled $9,158. How many tickets were sold at the door?

   140 sold at door

2. The larger of two complementary angles is 12 more than five times the measure of the smaller. Find the measure of the two angles.

   13° and 77°

3. You are searching for two integers. The sum of twice the first integer and three times the second integer is nine. At the same time, the sum of three times the first integer and twice the second integer is one. Find the two integers.

   -3 and 5

4. Grandma's Bakery sells single crust apple pies for $6.99 and double crust cherry pies for $10.99. The total number of pies sold on a busy Friday was thirty-six. If the amount collected for all the pies that day was $331.64, how many of each type of pies was sold?

   20 double crust
   16 single crust

5. A fashion designer makes and sells hats. The material for each hat costs $5.50. The hats sell for $12.50 each. The designer spends $1400 on advertising. How many hats must the designer sell to break even?

   200 hats

6. A plane takes about 6 hours to fly you 2,400 miles from New York City to Seattle, Washington. At the same time, your friend flies from Seattle to New York City. His plane travels with the same average airspeed, but his flight takes 5 hours. Find the average airspeed of the planes. Find the average wind speed.

   40 mph

7. Bill has $2.00 in quarters and dimes. The number of quarters is 4 less than twice the number of dimes. Find the number of coins of each type.

   6 quarters, 5 dimes

8. The larger of two supplementary angles is 6 less than 5 times the smaller. Find the measure of the two angles.

   31° and 149°

9. A plane flew 2,100 km with the jet stream in 2.5 hours. The return flight against the jet stream took 3.75 hours. Find the speed of the jet stream and the airspeed of the plane.

   plane speed 700 km/h
   wind speed 140 km/h

10. At a recreation and sports facility, 3 members and 3 nonmembers pay a total of $180 to take an aerobics class. A group of 5 members and 3 nonmembers pay $210 to take the same class. How much does it cost members and nonmembers to take an aerobics class?

Members $15
Nonmembers $45

11. The larger of two numbers is 5 more than twice the smaller. If the smaller is subtracted from the larger, the result is 12. Find the numbers.

7 and 19

12. On a canoe trip, Rita paddled upstream (against the current) at an average speed of 2 mi/h relative to the riverbank. On the return trip downstream (with the current), her average speed was 3 mi/h. Find Rita's paddling speed in still water and the speed of the river's current.

paddle speed 2.5 mph
current speed .5 mph

13. A light plane flew from its home base to an airport 255 miles away. With a head wind, the trip took 1.7 hours. The return trip with a tail wind took 1.5 hours. Find the average airspeed of the plane and the average windspeed.

Plane speed 160 mph
Wind speed 10 mph

14. A bicycle store costs $2,400 per month to operate. The store pays an average of $60 per bike. The average selling price of each bicycle is $120. How many bicycles must the store sell each month to break even?

40 bikes

15. The local zoo is filling two water tanks for the elephant exhibit. One water tank contains 50 gal of water and is filled at a constant rate of 10 gal/h. The second water tank contains 29 gal of water and is filled at a constant rate of 3 gal/h. When will the two tanks have the same amount of water? Explain.

never

16. At an ice cream parlor, ice cream cones cost $1.10 and sundaes cost $2.35. One day, the receipts for a total of one hundred seventy-two cones and sundaes were $294.20. How many cones were sold?

88 ice cream cones
84 sundaes