Systems of Equations – Additional Problems

For each problem:

a) Determine what variables to use and what each represents
b) Write the two open sentences.

1. The sum of two numbers is 47. The difference between the two numbers is 3. Find the numbers.
   x + y = 47, x – y = 3
2. One complementary angle is 4 degrees more than the other. Determine the size of each angle.
   x + y = 90, x = y + 4
3. The length of a rectangle is 12 more than two times the width. The perimeter of the rectangle is 68. Determine the measures of each side of the rectangle.
   x = 2y +12, 2x + 2y = 68
4. One number is 3 less than four times the second number. Two times the first number increased by 6 times the second results in a sum of 320. What are the two numbers?
   x = 4y - 3, 2x + 6y = 320
5. Two times one supplementary angle is 8 degrees more than four times the second angle. Determine the measure of each angle.
   x + y = 180, 2x = 4y + 8
6. Angela has 38 coins made up of quarters and loonies. The total value of the coins is $32.50. Determine how many of each kind of coin Angela has.
   x + y = 38, .25x +1.00 y = $32.50
7. Jess has $2500 dollars to invest: some of which will be invested at 4% and the remainder at 9%. The investments will result in an annual amount of $235. How much was invested at each rate?
   x + y = 2500, .04x + .09y = 235
8. The difference between two numbers is 8. Four times the second decreased by twice the first is equal to 20. What are the two numbers?
   x - y = 8, 4y – 2x = 20
9. The difference in the measures of two sides of a rectangle is 14 and the perimeter of the rectangle is 68. Determine the measure of each side of the rectangle.
   x - y = 14, 2x + 2y = 68
10. The attendance of 4000 individuals at a concert results in total receipts of $45,000. If adult tickets cost $15 and students tickets cost $10., how many adults attended the concert?
    x + y = 4000, 15x + 10y = 45000
11. If Brett invested $800 more at 5% than at 3% and the annual income amounted to $80; how much was invested at each rate?
    x = y + 800, .05x + .03y = 80
12. Three times one complementary angle subtracted from two times the second is equal to 4 degrees. Determine the measure of each angle.
    x + y = 90, 3x – 2y = 4
13. If the side of an isosceles triangle is 6 more than the base and the perimeter of the triangle is 36; determine the length of the base.

x = y + 6, 2x + 2y = 36

14. One supplementary angle is 8 degrees less than three times the second angle. Determine the measure of each angle.
    x + y = 180, x = 3y - 8
15. If a kilogram of apples costs 87 cents more than a kilogram of oranges and the total cost of buying 5 kilograms of apples and three kilograms of oranges is $13.39, what is the cost of a kilogram of apples?
    x = y - 87, 5x + 3y = $13.39
16. One number decreased by 7 is 4 more than twice the second. Five times the first added to three times the second is 60. Find the two numbers.
    x - 7 = 2y + 4, 5x + 3y = 60