Linear Models
Practice Problems

1. The length of a rectangle is 2 inches less than three times its width. If the perimeter of the rectangle is 108 inches, find its length and width.

    ANS   14 inches by 40 inches

2. One angle of a triangle is 20 degrees greater than the smallest angle and the third angle is twice the smallest angle. Find the three angles.   HINT: The sum of the angles of a triangle is 180 degrees.

    ANS   40 degrees, 60degrees,
              80 degrees

3. The computer store has reduced the price of a computer by 15%. What is the original price of the computer if the sale price is $1275?

    ANS $1500

4. Carlos can walk 8 miles in the same time it takes him to jog 12 miles. His jogging rate is 5 miles per hour faster than his walking rate. At what rate does he walk? How long does it take him to walk 8 miles?   ANS   10 mph
                                                                                                48 minutes

5. Two cars leave the same point traveling in opposite directions. The second car travels 15km/hr faster than the first, and after 3 hours they are 465 km apart. How fast is each car traveling?   ANS   70 km/hr
                                                                                                85 km/hr

6. Two boats leave an island at 8:00 a.m. sailing due north. If one is going 5 mph faster than the other, how far apart will they be at 3:00 p.m. the same day?

    ANS   35 miles

7. A chemist has one solution containing a 10% concentration of acid and a second solution containing a 15% concentration of acid. How many milliliters of each should be mixed in order to obtain 10 milliliters of a solution containing 12% concentration of acid?

    ANS   6 ml of 10%
              4 ml of 15%

8. A person invests part of $62,000 in a certificate that yields 13.2% simple annual interest and puts the rest of the money in a certificate that yields 13.7% simple annual interest. At the end of one year, the combined interest on the two certificates is $8,354. How much did the person invest in each certificate?

    ANS $28,000 @ 13.2%
              $34,000 @ 13.7%