Steps for Solving Applied Problems

1. Read the problem carefully (several times). Identify what you are looking for (i.e. what is the question asking). If possible determine realistic possibilities for the answer.

2. Assign a letter (variable) to represent what you are looking for. If necessary, explain the remaining unknown quantities in terms of this variable.

3. Make a list of known facts, and translate them into mathematical expressions (equalities or inequalities that may involve your variable). If possible/necessary draw a diagram or chart.

4. Solve the equation for the variable, then answer the question.

5. Check your answer with the facts of the problem. (If it agrees, you’re done, if it doesn’t go back and try again)

Note: Setting up and solving word problems is NOT something you can learn from watching someone else do it. You MUST work on the homework questions from this section before our next class. This is a great section to go the LRC or office hours for some help with.

Examples

1. A local coffee roaster currently sells two kinds of coffee. Type A is lower quality and sells for $5 a pound, and Type B is much higher quality and sells for $15 a pound. Many of their customers would like a higher quality than Type A, but not as high as Type B, They decide to create 200 lbs of a blend than they will sell at $9 a pound. How many pounds of each Type of coffee should they include in their blend? (Assume there will be no additional mark up or discount on the blended coffee.)

2. Ted is canoeing on a river whose current is 2 km/hour. First he travels upstream a distance of 5 km. Then he turns around and canoes downstream to his original starting point. Assume that Ted’s speed relative to the water is constant. If the round trip took 6 hours, what was Ted’s speed?

3. Thelma and Louis own a little coffee shop. If she works alone it takes Thelma 3 hours to clean the coffee shop at the end of the day. If Louis works alone, it takes her 2 hours to clean the coffee shop at the end of the day. One Saturday they close at 5:00, and both women will work together to clean the coffee shop. When will they be done?
4. Buster leaves home in CA and runs due west (toward the ocean) at (an average of) 6 miles per hour. One and a half hour later Michael leaves the house and follows the same route as buster driving at an average of 40 miles per hour. How long after he leaves the house does Michael catch Buster?

5. Billy has $50,000 to invest, and he would like to earn $1800 in interest per annum. He found a safe (government insured) bond, that will earn 2% interest, and a riskier investment that will pay 6%. How much should Billy place in each investment to achieve his goal?