

*HAP 1.7 Problem Solving: Interest, Mixture, Uniform Motion, and Constant Rate Job***SFHS “Four steps” of a “word problem”(aka “Application”)**

- Declare one or more variables (Definition or label a graph)
 - Make one or more relationships (equation or inequality)
 - Solve for your variable(s)
 - Write your conclusion (include context and units)
1. Translate the following sentence into a mathematical equation. “The area, A , of a circle is the product of the number π and the square of the radius, r .”

 2. Betsy, a recent retiree, requires \$6,000 per year in extra income. She has \$70,000 to invest and can invest in B-rated bonds paying 17% per year or in a CD paying 7% per year. How much money should be invested in each to realize exactly \$6,000 in interest per year?

 3. A nut store normally sells cashews for \$4 per pound and peanuts for \$1.50 per pound. At the end of the month the peanuts had not sold well, so, in order to sell 60 pounds of peanuts, the manager decided to mix the 60 pounds of peanuts with some cashews and sell the mixture for \$2.50 per pound. How many pounds of cashews should be mixed with the peanuts to ensure no change in the profit?

4. A boat can maintain a constant speed of 34 mph relative to the water. The boat makes a trip upstream to a certain point in 21 minutes; the return trip takes 13 minutes. What is the speed of the current?

5. Trent can deliver his newspapers in 60 minutes. It takes Lois 40 minutes to do the same route. How long would it take them to deliver the newspapers if they work together?

Answers:
 (1.) $A = \pi r^2$ (2.) Betsy should invest \$11,000 in bonds at 17% and \$29,000 in CD's at 7% interest
 (3.) 40 pounds of cashews should be mixed with the peanuts to ensure no change in the profit
 (4.) The speed of the current is 8 mph
 (5.) If they work together at the same rate, it should take 24 minutes to complete the task.