MATH 1010 ~ Intermediate Algebra   Chapter 2: LINEAR EQUATIONS AND INEQUALITIES

Section 2.3: Business and Scientific Problems

Objectives:

* Use mathematical models to solve business-related problems.
* Use mathematical models to solve mixture problems.
* Use mathematical models to solve rate problems.

It takes me 3 hours to perform a task; It takes my friend 5 hours. If we work together, how long should it take?

RATES IN BUSINESS

① EXAMPLE:

Simple Interest:

(#86) Find the annual interest rate on a CD that earned $400 interest in 2 years on a principal of $2500.

$$A = P(1+r) \qquad \text{or } I = Prt$$

② EXAMPLE:

(#32) An appliance store charges $50 for the first 1/2 hour of a call and $18 for each additional   1/2 hour of labor. Find the length of service call if you were charged $104.

③ EXAMPLE:

A department store sells a beach towel for $14.00. On sale, the towel is $10.00. What is the discount rate?

MIXTURE PROBLEMS

④ EXAMPLE:

A grocer mixes two kinds of nuts costing $3.88 per pound and $4.88 per pound to make 100 pounds of a mixture costing $4.13 per pound. How many pounds of each kind of nut are in the mixture?

⑤ EXAMPLE:

Ticket sales for a spaghetti dinner total $1350. There are 4 times as many adult tickets sold as children's tickets. The adult tickets are $6.00 and the children's are $3.00. Find the number of children's tickets sold.

DISTANCE PROBLEMS

⑥ EXAMPLE:

You ride your bike at an average speed of 8 mi/hr. How long will it take you to ride 12 miles?

WORK-RATE PROBLEMS

⑦ EXAMPLE:

I can complete a typing task in 4 hours. My daughter can do the task in 7 hours. How long will it take us if we work together?

SOLVING FOR A VARIABLE IN A FORMULA

Solve for c in this formula. $s = C + rC$