Proportion Applications

Key

Recall from your notes in 6th grade...

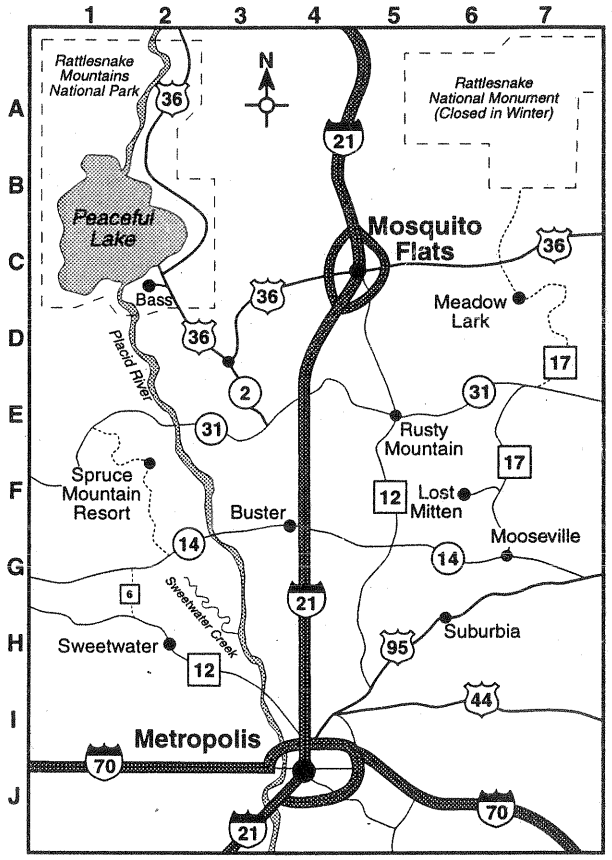
"A proportion is an equation showing that two ratios are equivalent.

There are many different times when proportions can be used to solve practical word problems. We are going to consider three of the many applications of when solving proportions can be really useful!

❖ **Map Scales**

Scales are used in maps to represent distance. For example, in the map below, $\frac{3}{4}$ inch is equal to 30 miles. Use the map below to answer the three questions. Remember... about means to estimate! (Sharpen Up 8)

Mosquito Flats and Surrounding Regions



1. The distance by road between Mosquito Flats and Buster is *about* how many miles?

$\frac{\frac{3}{4}\text{ in}}{30\text{ mi}} = \frac{1\frac{1}{2}\text{ in}}{x\text{ miles}}$ → $\frac{3}{4}x = 1\frac{1}{2}(30)$

$x \approx 60$ miles

2. The distance by road between Buster and Mooseville is about how many miles?

$\frac{\frac{3}{4}\text{ in}}{30\text{ mi}} = \frac{1\text{ in}}{x}$ → $\frac{3}{4}x = 30(1)$

$x \approx 40$ miles

3. Which town is farther away by road from Mosquito Flats, Meadow Lark, or Bass? *Estimate* how many miles farther.

Meadow Lark

~ 1 inch

Bass

~ $1\frac{1}{2}$ in

$1\frac{1}{2} - 1 = \frac{1}{2}$

$\frac{\frac{3}{4}\text{ in}}{30\text{ mi}} = \frac{\frac{1}{2}\text{ in}}{x}$

$x \approx 20$ miles

❖ **Foreign Currency**

When you go to a different country you will need to exchange your money for the currency that is used in the country you are visiting. The exchange rate tells you the amount of foreign currency you would get for your US dollar. By the way, the currency rate changes daily. Setting up, using, and solving a proportion allows you to see what your money is worth! We will do a few examples of this proportion application below...

1. In 2004, 1.34 Canadian dollars were worth one US dollar. How many US dollars would an item cost if it cost $150 in Canada?

$$\frac{1.34 \text{ Can}}{1 \text{ US}} = \frac{150 \text{ Can}}{x \text{ US}} \qquad x \approx \$111.94$$

2. Yesterday the Universal Currency Converter on the internet showed that 101.51 pesetas (Spain) were worth one US dollar. How many US dollars would an item cost if it cost 1905.67 pesetas?

$$\frac{101.51 \text{ pes}}{1 \text{ US}} = \frac{1905.67 \text{ pes}}{x \text{ US}} \qquad x \approx \$18.77$$

❖ **Unit Price**

Last year you learned about "unit rate"... Unit rate is "a rate with a denominator of one *(In other words, how much for one unit". **Unit price is the amount of money** one **item would cost.** By finding the unit price of each item, you will be able to see which brand is the better buy. Try the examples below by solving a proportion.*

1. One and a half pounds of maple flavored turkey cost $8.54. What is the unit price of the turkey?

$$\frac{\$8.54}{1.5 \text{ lbs}} = \frac{\$x}{1 \text{ lb}} \qquad x \approx \$5.69/\text{lb}$$

2. Which is the best buy? 7 oz. Colgate for $4.50, 8 oz. Crest for $4.75, or 5 oz. Aim for $4.30?

Colgate: $\frac{4.50}{7} \approx .64/\text{oz}$

Crest: $\frac{4.75}{8} \approx .59/\text{oz}$

Aim: $.86/\text{oz}$, $\frac{4.30}{5} \approx$

Crest is the best buy!