Name _____ Date _____ Class _____

Working with Percentages and Proportions

When working with percentages, it is often helpful to think of them in terms of ratios and proportions. For instance, if someone asks you, "What is 10% of 40?" you could simply change 10% into a decimal (0.1) and multiply it by 40 to get 4. But what if you were asked, "5% of what number is 10?" That's a little trickier. To do this calculation, it is convenient to use a proportion.

PROCEDURE: To use percentages in a proportion, first put your known percentage in a ratio with 100. Then create an equivalent ratio, leaving the place for your unknown quantity blank. Cross-multiply the known numerator with the known denominator. Divide the product with your remaining known value. The result is your unknown quantity.

SAMPLE PROBLEM: 25% of what number is 4?

Step 1: Put your percentage in a ratio with 100. $\frac{25}{100}$	Step 2: Create an equivalent ratio, leaving the space for the unknown quantity blank. $\frac{25}{100} = \frac{4}{?}$
Step 3: Cross-multiply the known numerator with the known denominator. $\frac{25}{100}\swarrow\nearrow\frac{4}{?} \rightarrow 100 \times 4 = 400$	Step 4: Divide the product with the remaining known quantity. $400 \div 25 = 16$

25% of 16 is 4.

Figure It Out!

1. Follow the steps above to answer the following questions:

a. 15% of what number is 3? _____

b. 25% of what number is 11? _____

c. 8% of what number is 4? _____

d. 24% of what number is 168? _____

2. A biologist estimates that the number of frogs living in Lasso Pond increased last summer by about 70 frogs. If this represents a 25 percent increase, how many frogs lived in the pond before last summer?

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