lesson twenty-two - student resource sheet

Lesson Objective: Solve proportions using the cross products method.

Vocabulary Box

proportion — An equality of two ratios. Examples: $\frac{4}{5}=\frac{8}{10}$ and $\frac{a}{b}=\frac{c}{d}$.

cross products — The products found for two ratios by multiplying the numerator of the first ratio by the denominator of the second, and by multiplying the denominator of the first ratio by the numerator of the second.

Examples: The cross products for the ratios $\frac{4}{5}$ and $\frac{8}{10}$ are $4 \bullet 10$ and $5 \bullet 8$. The cross products for the ratios $\frac{a}{b}$ and $\frac{c}{d}$ are $a \bullet d$ and $b \bullet c$.

Guided Practice

Directions: Complete the following practice problems. Your teacher will review the answers. Make sure you show all your work.

I. Solve each proportion with a partner and check your answers.

1. $\frac{n}{5}=\frac{6}{10}$ $n =$ _____

2. $\frac{6}{m}=\frac{2}{7}$ $m =$ _____

3. $\frac{8}{11}=\frac{6}{r}$ $r =$ _____

II. Solve each proportion on your own and check your answers.

1. $\frac{f}{10} = \frac{4}{8}$ $f =$ _____

2. $\frac{17}{k} = \frac{5}{4}$ $k =$ _____

3. $\frac{8}{b} = \frac{4}{7}$ $b =$ _____

Summary/Closure

A. Vocabulary Words
Describe how the terms proportion and cross products are related.

B. Summarize What We Learned Today
Tell whether the solution is correct or incorrect. If it is incorrect, describe what is wrong and give the correct answer.

$$\frac{x}{6} = \frac{8}{12}$$

$$72 = 12x$$
$$\frac{72}{12} = \frac{12x}{12}$$
$$x = 6$$

lesson twenty-three - student resource sheet

Lesson Objective: Solve proportions using the cross products method.

Vocabulary Box

proportion — An equality of two ratios. Examples: $\frac{4}{5}=\frac{8}{10}$ and $\frac{a}{b}=\frac{c}{d}$.

cross products — The products found for two ratios by multiplying the numerator of the first ratio by the denominator of the second, and by multiplying the denominator of the first ratio by the numerator of the second.

Examples: The cross products for the ratios $\frac{4}{5}$ and $\frac{8}{10}$ are $4 \bullet 10$ and $5 \bullet 8$. The cross products for the ratios $\frac{a}{b}$ and $\frac{c}{d}$ are $a \bullet d$ and $b \bullet c$.

Independent Practice

Directions: Complete the following practice problems on your own. Your teacher will review the answers. Make sure you show all your work.

I. Solve each proportion using the cross products method. Then check each answer.

1. $\frac{3}{10}=\frac{a}{50}$ $a =$ _____

2. $\frac{16}{12}=\frac{9}{v}$ $v =$ _____

3. $\frac{7}{18}=\frac{28}{z}$ $z =$ _____

4. $\frac{1.2}{0.2} = \frac{c}{6.5}$ $c =$ _____

5. $\frac{9}{k} = \frac{1.5}{3.5}$ $k =$ _____

II. Indicate whether the following pairs of fractions form a proportion. Write *yes* or *no* on the line provided.

1. $\frac{10}{45} = \frac{2}{9}$ _____

2. $\frac{8}{13} = \frac{16}{25}$ _____

Directions: Solve for a, b, and c.

$\frac{5}{a} = \frac{15}{6} = \frac{35}{c} = \frac{b}{40}$

$a =$ _____ $b =$ _____ $c =$ _____

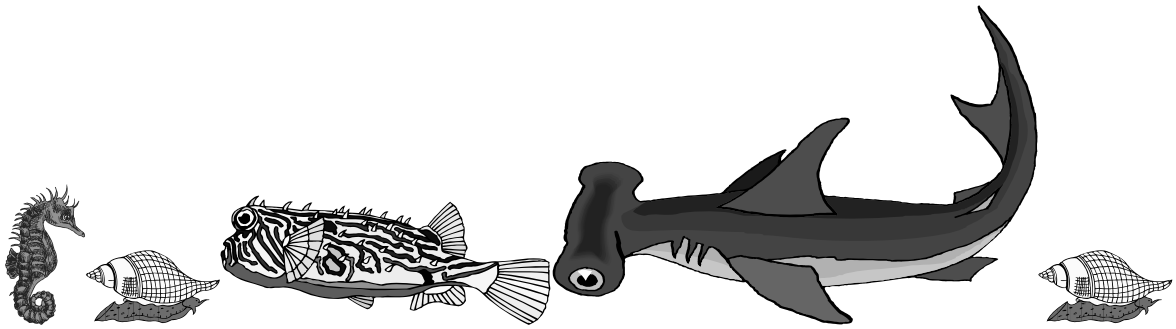
Problem Solving

You are in charge of planning a field trip to the aquarium for your class. Set up a proportion and use the cross products method to find a solution for each situation. Make sure you check each answer and write your final answer in a complete sentence.

1. The school rules state that there must be one chaperone for every eight students. How many chaperones will you need if 72 students are going on the trip? Use the proportion $\frac{1}{8} = \frac{x}{72}$ to determine the solution.

2. The aquarium has a special rate for school groups. The cost is $10.00 for every three students. What will be the total cost for 72 students on the trip?

3. At the concession stand, hot dogs are two for $3.00. How much will 15 hot dogs cost?



1. $\frac{6}{18} = \frac{x}{27}$

2. $\frac{j}{5} = \frac{1.4}{2}$

3. When checking the answers to _____, the cross products must be _____.

lesson twenty-four - student resource sheet

Lesson Objective: Solve percent equations (6% of 30 equals what number? 1.8 is what percent of 30? 1.8 is 6% of what number?).

Vocabulary Box

percent — A ratio that compares a number to 100. Example: $50\% = \frac{50}{100}$.

Guided Practice

Directions: Complete the following practice problems. Your teacher will review the answers. Make sure you show all your work.

Copy the percent proportion into the box below.

The Percent Proportion

_____ = _____

I. Set up a proportion for each problem. Solve the proportion and check your answer.

1. 10% of 15 is what number?

2. 7 is 35% of what number?

3. What percent of 20 is 8?

II. Set up a proportion, solve, and check each answer. Please work on your own.

1. 12% of what number is 24?

2. 67% of 39 is what number?

3. 50 is what percent of 200?

Summary/Closure

A. Vocabulary Words
Write a definition and then list four real-world applications of percent.

B. Summarize What We Learned Today
Write a problem in this form: _____ percent of _____ is _____, filling in two numbers and the word “what” in the blanks. Then set up a proportion and solve.