Reteaching 3-4  
Ratio and Proportion

**OBJECTIVE:** Solve proportions  
**MATERIALS:** None

An equation that states that two ratios are equal is called a proportion. In a proportion, the cross products are equal.

**Example:**

Use cross products to find out if the proportion \( \frac{2}{7} = \frac{10}{40} \) is true.

\[
\frac{2}{7} = \frac{10}{40}
\]

\[
2 \cdot 40 = 7 \cdot 10 \quad \rightarrow \quad \text{Write cross products.}
\]

\[
80 = 70 \quad \rightarrow \quad \text{Simplify.}
\]

\[
80 \neq 70 \quad \rightarrow \quad \text{Proportion is not true since 80 does not equal 70.}
\]

Use cross products to write and solve equations involving proportions.

Solve: \( \frac{5}{6} = \frac{25}{x} \)

\[
\frac{5}{6} = \frac{25}{x}
\]

\[
5x = 6 \cdot 25 \quad \rightarrow \quad \text{Set cross products equal to each other.}
\]

\[
5x = 150 \quad \rightarrow \quad \text{Simplify.}
\]

\[
\frac{5x}{5} = \frac{150}{5} \quad \rightarrow \quad \text{Use the Division Property of Equality.}
\]

\[
x = 30 \quad \rightarrow \quad \text{Simplify.}
\]

**Exercises**

Determine if the proportions are true. (Hint: the cross products should be equal.)

1. \( \frac{6}{10} = \frac{12}{20} \)
2. \( \frac{4}{5} = \frac{7}{8} \)
3. \( \frac{33}{22} = \frac{24}{16} \)

Solve each proportion.

4. \( \frac{x}{5} = \frac{2}{10} \)
5. \( \frac{9}{180} = \frac{n}{60} \)
6. \( \frac{2}{x} = \frac{8}{36} \)

7. \( \frac{2}{6} = \frac{4}{x} \)
8. \( \frac{30}{125} = \frac{n}{100} \)
9. \( \frac{3}{18} = \frac{r}{6} \)

10. \( \frac{t}{5} = \frac{3}{5} \)
11. \( \frac{28}{8} = \frac{7}{x} \)
12. \( \frac{9}{n} = \frac{18}{2} \)