***Solve Proportional Relationships***

**Example 1 - Solve using Equivalent Fractions**

**Solve** $\frac{3}{27}=\frac{7}{m}$

 $\frac{3}{27}=\frac{7}{m}$Look for a relationship between the two fractions OR between the numbers in the full ratio.

 3 • *9* = 27 The numerator of 3 can multiplied by 9 to get the denominator.

 7 • *9* = 63 *Use that same multiplication (in the same direction) for the other ratio.*

 *m = 63* Write the answer and include the variable.

**Example 2 - Solve using Cross Products**

**Solve** $ \frac{12}{30}=\frac{k}{70}$

 12 • 70 = 30 • *k* Find the cross products. Multiply the numerator of one ratio by the denominator of the
 other ratio. Set the products equal to each other. It’s an equation!!!

 840 = 30*k* Simplify.

 $\frac{840}{30} = \frac{30k}{30}$ Solve the equation using inverse operations. Divide each side by 30.

 28 = *k* Simplify.

**Solve each proportion.**

 **1.** $\frac{4}{12 } = \frac{y}{9}$ **2.** $\frac{6}{18} = \frac{4}{c}$ **3**. $\frac{7}{z} = \frac{84}{12}$

 **4.** $\frac{5}{10} = \frac{8}{w}$ **5**. $\frac{x}{9} = \frac{4}{15}$ **6.** $\frac{6}{20} = \frac{y}{5}$

 **7.** $\frac{5}{9} = \frac{6}{r}$ **8.** $\frac{8}{n} = \frac{10}{7}$  **9.** $\frac{d}{5} = \frac{12}{80}$

 **10.** $\frac{y}{5} = \frac{13}{10}$ **11.** $\frac{2}{28} = \frac{p}{35}$ **12.** $\frac{11}{t} = \frac{100}{11}$

 **13.** $\frac{1.2}{m} = \frac{3}{5}$  **14.** $\frac{0.9}{0.5} = \frac{a}{10}$ **15.** $\frac{3}{7} = \frac{k}{4.2}$

**For Exercises 10 –12, assume all situations are proportional.**

 **16. CLASSES** For every girl taking classes at the martial arts school, there are 3 boys who are taking classes at the school. If there are 236 students taking classes, write and solve a proportion to predict the number of boys taking classes at the school.

 **17. BICYCLES** An assembly line worker at Rob’s Bicycle factory adds a seat to a bicycle at a rate of 2 seats in 11 minutes. Write a proportion relating the number of seats *s* to the number of minutes *m*. At this rate, how long will it take to add 16 seats? 19 seats?

 **18. PAINTING** Lisa is painting a fence that is 26 feet long and 7 feet tall. A gallon of paint will cover 350 square feet. Write and solve a proportion to determine how many gallons of paint Lisa will need.