

# Notes

Proportion: two fractions (or ratios) that are equal to each other.

Example:  $\frac{1}{2} = \frac{2}{4}$

If there is a missing value in the proportion you can scale up (multiply) or scale down (divide) to find the missing value.

example:  $\frac{3}{5} = \frac{12}{20}$

Note: scaling up is like finding a common denominator or LCD  
scaling down is like reducing a fraction or simplifying

example  $\frac{36}{54} = \frac{4}{6} = \frac{2}{3}$

## Scaling Up

If a variety pack of muffins contains 2 blueberry to 5 total muffins how many total muffins would you have if there were 20 blueberry muffins?

1) Write a proportion  $\frac{2 \text{ BB}}{5 \text{ Total}} = \frac{20 \text{ BB}}{x}$

2) What can you multiply 2 by to get 20?  $\frac{2}{5} = \frac{20}{x}$   $x = 50$

3) You would get a total of 50 muffins

## Scaling Down

If 3 tickets cost \$26.25 what is the cost of one ticket

1) Write a proportion

$$\frac{3 \text{ tickets}}{26.25} = \frac{1 \text{ ticket}}{x}$$

2) What can you divide 3 by to get 1?

$$\begin{array}{r} 8.75 \\ 3 \overline{) 26.25} \\ \underline{-24} \phantom{00} \\ 22 \phantom{00} \\ \underline{-21} \phantom{00} \\ 15 \phantom{00} \\ \underline{-15} \phantom{00} \\ 0 \end{array}$$

$$\frac{3}{26.25} = \frac{1}{x}$$

$x = 8.75$

One ticket costs \$8.75

If you can't scale up or scale down try simplifying the fraction of one side of the proportion first.

$$\frac{8}{12} = \frac{x}{30}$$

Reduce  $\div 4$

hmm... no easy multiplication exists

$$\frac{2}{3} = \frac{x}{30}$$

$\times 10$  (on 3)  
 $\times 10$  (on 30)

$$x = 20$$

Ahh! Now it works!