

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.

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 $\frac{2 \text{ blueberry}}{5 \text{ total}} = \frac{20 \text{ blueberry}}{x \text{ total}}$

② What can you multiply 2 by to get 20?

$$\frac{2}{5} = \frac{20}{x}$$

$\begin{matrix} \nearrow \times 10 \\ \searrow \times 10 \end{matrix}$

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?

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

$\begin{matrix} \nearrow \div 3 \\ \searrow \div 3 \end{matrix}$

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

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.

$$\frac{8}{12} = \frac{4}{6} = \frac{x}{30}$$

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

Diagram showing the simplification of the fraction $\frac{8}{12}$ to $\frac{2}{3}$ by dividing both numerator and denominator by 4. The diagram shows $\frac{8}{12}$ with a curved arrow labeled $\div 4$ pointing to $\frac{2}{3}$.

$$x = 20$$