



Ratios & Proportions: Notes

Ratios:

Ratio: a relation between a part and a whole
↳ Just like a fraction, but instead of $\frac{a}{b}$,
it is $a : b$

- Tells us how many times one number
contains another

* Treat ratios similar to fractions :

Example: $\frac{5}{6} \rightarrow 5 : 6$
(fraction) (ratio)
(5 over 6) (5 to 6)

* always have
a colon (:)

* : means to

Proportions:

Proportions: the relationship between 2 or more ratios/fractions:

structure: $\frac{a}{b} = \frac{c}{d}$

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

Solving Proportions:

- When asked to solve a proportion, you will have one place of a number which is unknown represented by a letter (variable), usually x .

$\frac{3}{4} = \frac{x}{12}$ ← You can solve this 2 ways:

Method # 1:

- Find the LCP and make the numerators equal:

$$\begin{array}{r} \frac{3}{4} = \frac{x}{12} \\ \times 3 \\ \hline x = 9 \end{array}$$

Method # 2:

- Use cross multiplication:

↳ Multiply the first denominator w/ the second numerator

↳ Multiply the first numerator w/ the second denominator

↳ Make them equal to each other

↳ Isolate x by dividing all numbers to the other side of x

$$\frac{3}{4} = \frac{x}{12}$$

$$\frac{3}{4} \times 12 = \frac{x}{12} \times 12$$

$$4x = 36$$

$$\frac{4x}{4} = \frac{36}{4}$$

$$x = 9$$

* What you do to one side of an equation, you do to the other as well

* You will mostly divide numbers from x to make it alone

* You can always multiply variables (letters in place of an unknown number) together with themselves or other real numbers