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Ratio and Proportions

Ratio :- A ratio is a comparison between two quantities expressed as.

$$a : b$$

Eg. If there are 3 apples and 2 oranges, the ratio of apples to orange is

$$3 : 2$$

Proportions :-

A proportion states that two ratios are equal.

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

Cross Multiplication Rule :-

$$a \times d = b \times c.$$

It is used to find the missing value in a proportion.

Problem 1 :-

  Simplify the ratio : 36 : 48

Solutions :-

  Find the GCD of 36 and 48, which is 12

  Divide both term by 12 :

$$\frac{36}{12} : \frac{48}{12} = \frac{3}{4} \quad i.e \quad 3:4$$

Ans :- 3 : 4

Problem 2 :- Find the missing value in a proportion

$$\frac{3}{4} = \frac{x}{16}$$

Solution :-

$$3 \times 16 = 4 \times x$$
$$48 = 4x$$
$$x = \frac{48}{4}$$

$$x = 12$$

So value of x is 12 in eq^n $\frac{3}{4} = \frac{x}{16}$