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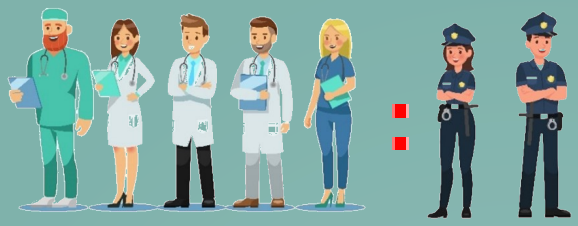

5 : 2

RATIO AND PROPORTION

KEY POINTS

Comparison

There are two ways of comparison

(i) By taking difference

(ii) By division

Ratio

The ratio between two quantities p and q = p : q.

Simplest form of ratio

A ratio is in its simplest form if the terms of the ratio have no common factors other than 1.

Equivalent ratios

If we multiply or divide both the numerator and the denominator by the same number, we get an equivalent ratio.

E.g., $\frac{40}{100} = \frac{40 \div 2}{100 \div 2} = \frac{20}{50}$

$\frac{2}{5} = \frac{2 \times 3}{5 \times 3} = \frac{6}{15}$

Comparison of ratios

Steps

(i) Write the given ratios as fractions in the simplest form.

(ii) Find the LCM of the denominators of the fractions.

(iii) Convert them into like fractions with same denominators.

(iv) Compare the numerators and arrange the fractions.

(v) Then respective ratio are also in the same order.

Dividing a number in the given ratio

If the number p is to be divided in the ratio a : b, then the first part = $\left(\frac{a}{a+b}\right) \times p$ and the second part $\left(\frac{b}{a+b}\right)$

Proportion

3 Baskets : 5 Baskets

or 12 Apples : 20 Apples

So, we can write it as, 3 : 5 : : 12 : 20

Continued proportion

Three numbers a, b, c are said to be in continued proportion if a, b, b and c are in proportion. i.e., $\frac{a}{b} = \frac{b}{c} \Rightarrow b^2 = ac$ If a, b, c are in continued proportion then b is known as the mean proportion of a and c, c is known as the third proportion.

Unitary method

This method of problem solving is called the unitary method.