(Olympiad Excellence Notes)

NOTES

FUNDAMENTALS

✓ In this chapter, we shall study comparing quantities like ratio and proportion, profit and loss, discount simple interest, distance speed and time.

Ratio and Proportion

✓ Ratio is a method of comparing two quantities of the same kind by division.

✓ When two ratios are equal, they are said to be in proportion.

✓ If two ratios are to be equal or are in proportion, their product of means should be equal to the product of extremes.

Example: If a: b: c: d then the statement ad = be, holds good.

If a: b and b: c are in proportion such that $b^2 =$

Ac than b is called the mean proportional of a: b and b: c

✓ Multiplying or dividing terms of the ratio by the same number gives equivalent ratios.

Elementary Questions

Q. If $5:6=a:18$, then $a=??$

Sol. $\frac{5}{6}-\frac{a}{18}=5\times18=a\times6$

$\Rightarrow a=\frac{5\times15}{6}=15$

Elementary Question:

Q. $\frac{37}{25}$ can also be written as,

(a) $\frac{147}{99}$ (b) $\frac{149}{101}$ (c) $\frac{148}{100}$ (d) $\frac{152}{97}$

Sol. $\frac{37}{25}=\frac{37\times4}{25\times4}=\frac{148}{100}$

Percentage

✓ Another way of comparing quantities is percentage. The word percent means per hundred. Thus 12% means 12 parts out of 100 parts

✓ Fractions can be converted into percentages and vice= versa.

Example: $\frac{2}{5}=\frac{2}{5}\times100\%=40\%$

(ii) $25\% = \frac{25}{100} = +\frac{1}{4}$

✓ Decimals can be converted into percentages and vice-versa.

Example:

(i) $0.36 = 0.36 \times 100\%$

(ii) $43\% = \frac{43}{100} = 0.43$

Simple Internet

✓ When we deposit money in banks, bank give interest on money. Interest may be simple interest (called S.I.)

A= Amount

B= Principle

R= Rate

T= Time

$$S.I. = \frac{P \times R \times T}{100}$$

(Simple Interest) $S.I. = A - P$