

Simple Interest

Thursday, May 13, 2021 12:30 PM

$$S.I = \frac{P R N}{100} = \frac{10000 \times 10 \times 2}{100} = 2000$$

$S.I \downarrow$

$10,000 \rightarrow 10\%/yr \rightarrow 2 \text{ years}$

$10,000 \rightarrow 1000 - 1st \text{ year.}$

$10,000 \rightarrow 1000 \rightarrow 2nd \text{ year}$

$2000 \text{ Rs.} \rightarrow 12,000$

$C.I \downarrow$

$10000 \rightarrow 10\% \rightarrow 2 \text{ years}$

$10000 \rightarrow 1000 \rightarrow 1st \text{ year.}$

$10000 \rightarrow P + S.I \rightarrow 11000 \rightarrow 1100 \rightarrow 2nd \text{ year.}$

$2100 \rightarrow 12100$

$$S.I = \frac{P R N}{100} \rightarrow$$

P = Principal amount.

R = Rate of interest

N = no. of years.

→ When S.I is added to principal. It is change to amount.

$$A = P + S.I$$

$$S.I = A - P$$

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

Ex Find S.I on Rs. 5000 at the rate of interest

4% for $2\frac{1}{2}$ years.

$$S.I = \frac{P \times R \times N}{100} = \frac{5000 \times 4 \times \frac{5}{2}}{100} = 500 \text{ Rs.}$$

Ex Find the time taken when interest is

Rs. 12 on Rs. 120 at the rate of interest 5%

$$S.I = \frac{P \times R \times N}{100} \Rightarrow N = \frac{S.I \times 100}{P \times R}$$
$$= \frac{12 \times 100}{120 \times 5} = 2 \text{ years}$$

Ex A certain sum of money doubles itself a number of years is equal to rate of interest find the rate of interest.

$$A = P + S.I$$

→ Let's Assume $P = \underline{x}$ $A = 2x$

$$S.I = A - P = 2x - x = x //$$

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

$$x = \frac{x \times R \times R}{100} \Rightarrow R^2 = 100$$

$$\Rightarrow R = 10\%$$

$$N = 10 \text{ years.}$$

Ex A sum of money doubles itself in 5 years
in how many years it will become 4 times?

$$\rightarrow P = x \quad A = 2x \quad \Rightarrow SI = x$$

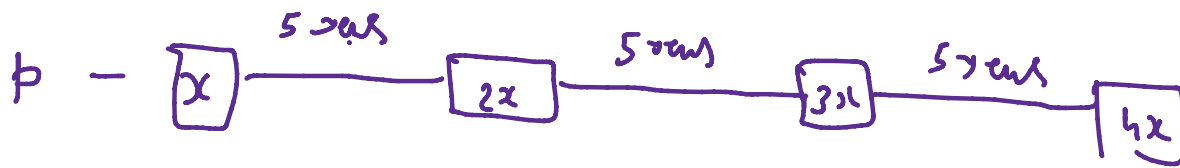
$$SI = \frac{P R N}{100} \Rightarrow x = \frac{x \times R \times 5}{100} \Rightarrow R = 20\% \dots \textcircled{1}$$

$$P = x \quad A = 4x \quad \Rightarrow SI = 4x - x = 3x$$

$$S.I = \frac{P R N}{100} \Rightarrow 3x = \frac{x \times R \times N}{100} \Rightarrow RN = 300 \dots \textcircled{2}$$

$$N = \frac{300}{R} = \frac{300}{20} = 15 \text{ years.}$$

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$$= 15 \text{ years},$$

$$\frac{x_1 - 1}{N_1} = \frac{x_2 - 1}{N_2}$$

$$\frac{2 - 1}{5} = \frac{4 - 1}{N_2} \Rightarrow \frac{1}{5} = \frac{3}{N_2} \Rightarrow N_2 = 15 \text{ years},$$

Ex Thus SI is the h/g of the principal & the number of years is equal to rate % .
find the rate %.

$$\rightarrow P = x$$

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

$$\frac{4}{9} x = \frac{x \times R \times R}{100}$$

$$R^2 = \frac{400}{9}$$

$$R = \frac{20}{3} = 6 \frac{2}{3} \%$$

Ex 11 At what rate of interest per annum will a sum doubled itself in 12 years?

$$\rightarrow P = x, \quad A = 2x$$

$$SI = A - P = 2x - x = x$$

$$SI = \frac{P R N}{100}$$

$$x = \frac{x \times R \times 12}{100} \Rightarrow R = \frac{100}{12} \times \frac{50}{6} = \frac{25}{3} = 8 \frac{1}{3} \%$$

$$R = \left(\frac{T-1}{N} \right) \times 100$$

$$= \frac{2-1}{12} \times 100 = \frac{1}{12} \times 100$$

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