

SIMPLE INTEREST



DEFINITIONS AND CONCEPTS

- (a) **Borrower:** The person who borrows money is called the borrower.
- (b) **Lender:** The person who lends money is called the lender.
- (c) **Principal:** The money borrowed from the lender is called the principal.
- (d) **Interest:** The extra money paid by the borrower to the lender for using his money is called interest.

There are two types of interest-

- Simple interest
- Compound interest

In this chapter we will learn only about simple interests.

- (e) **Simple interest:** Interest is called simple if it is calculated on the original principal during the loan term.

If P = principal, R = rate of interest per annum and T = time, then simple interest is:

$$\text{Simple Interest (S.I.)} = \frac{PRT}{100}$$

- (f) **Amount:** The total amount that the borrower pays back to the lender at the end of the specified period is called the amount.

$$\text{Amount} = \text{Principal} + \text{Interest}$$

Note:

- While calculating the number of days, we do not count the day on which the money is deposited but the date of withdrawal.
- Number of years = $\frac{\text{Total days}}{365}$

Example: A sum of ₹800 is lent at 18% per annum for one year. Find the interest.

Solution: According to the question,

P = Principal = ₹800, R = Rate of interest = 18% per annum, T = Time = 1 year

Now, interest on ₹100 for 1 year = ₹18

So, interest on ₹1 for 1 year = ₹ $\frac{18}{100}$

Similarly, interest on ₹800 for one year = $\frac{18}{100} \times 800 = ₹144$.

Example: In how many years will a sum of ₹750 become ₹900 at 4% per annum?

Solution: Here, $P = ₹750$, $A = ₹900$, $R = 4\%$ per annum

Let a sum of ₹750 become ₹900 at 4% per annum in T years.

We know that Interest = Amount – Principal

$$= ₹900 - 750 = ₹150$$

We know that:

$$I = \frac{PRT}{100}$$

$$\Rightarrow 150 = \frac{750 \times 4 \times T}{100}$$

$$\Rightarrow T = \frac{150 \times 100}{750 \times 4} \text{ years} = 5 \text{ years}$$

Example: A sum of money doubles in 8 years. Find the rate of interest?

Solution: Let the principal be ₹ P and the rate of interest be $R\%$ per annum.

Since the money doubles in 8 years, i.e., it becomes ₹ $2P$ in 8 years.

$\therefore$ Interest = Amount – Principal

$$\Rightarrow \text{Interest} = ₹2P - ₹P = ₹P$$

We know that Simple Interest = $\frac{PRT}{100}$

$$\Rightarrow P = \frac{P \times R \times 8}{100}$$

$$\Rightarrow R = \frac{P \times 100}{P \times 8} = \frac{100}{8} = 12.5\%$$

Hence, the rate of interest is 12.5% per annum.