Simple Interest

Principal / sum	It is the money borrowed/ lent out for a certain period.
Interest	It is the extra money paid for using other's money.
Simple Interest (SI)	It is the interest on a sum borrowed for certain period is reckoned uniformly. **Simple Interest (SI)** = PTR/100 Here Principal = P, Rate = R% per annum (p.a.) and Time = T years
Compound Interest(CI)	CI = P $[(1 + i)^{n} - 1]$ Here P = Principal, i = annual interest rate in percentage terms, and n = number of compounding periods.

Problems with solutions

1. A sum of money at simple interest amounts to Rs. 815 in 3 years and to Rs. 854 in 4 years. The sum is:

Solution

S.I. for 1 year = Rs. (854 - 815) = Rs. 39.

S.I. for 3 years = Rs. (39 x 3) = Rs. 117.

Principal = Rs. (815 - 117) = Rs. 698.

2. How much time will it take for an amount of Rs. 450 to yield Rs. 81 as interest at 4.5% per annum of simple interest?

Solution

Time = (100 x 81) / (450 * 4.5) years= 4 years.

3. A sum fetched a total simple interest of Rs. 4016.25 at the rate of 9 p.c.p.a. in 5 years. What is the sum?

Solution

$$\text{Principal} = \text{Rs. } \frac{100 \times 4016.25}{9 \times 5}$$

$$= \text{Rs. } \frac{401625}{45}$$

$$= \text{Rs. } 8925.$$

4. A sum of Rs. 12,500 amounts to Rs. 15,500 in 4 years at the rate of simple interest. What is the rate of interest?

S.I. = Rs. (15500 - 12500) = Rs. 3000.

Rate = $\frac{100 \text{ x } 3000}{12500 \text{ x } 4}$ % = 6%

5. An automobile financier claims to be lending money at simple interest, but he includes the interest every six months for calculating the principal. If he is charging an interest of 10%, the effective rate of interest becomes:

Let the sum = Rs. 100.

S.I. for first 6 months = Rs. $\frac{100 \text{ x } 10 \text{ x } 1}{100 \text{ x } 2}$ = Rs. 5

S.I. for last 6 months = Rs. $\frac{105 \text{ x } 10 \text{ x } 1}{100 \text{ x } 2}$ = Rs. 5.25

So, amount at the end of 1 year = Rs. (100 + 5 + 5.25) = Rs. 110.25

Effective rate = (110.25 - 100) = 10.25%