

Simple Interest

Simple Interest Formula

I = P x R x T

Where:
I = the Interest Money created in dollars
P = the "Principal" starting amount of money
R = the Interest Rate per year (in decimal form)
T = the Time the money is Invested,
or Borrowed, in Years

Interest is a profit of an investment. There are many ways to calculate the interest. The quick method of calculating the interest charge on a loan is called simple interest. The sum of money invested is called the principal which is denoted by 'P'. The money earned by the principal is called the interest (I) and is earned at a rate known as the interest rate (R).

Example

Let us consider an investment on simple interest terms of Rs 200 invested for 2 years at 15% per annum (p.a). Each year the investor will receive interest equal to 15% of the principal.

Interest received at the end of the first year = 15% of Rs 200 = $\frac{15}{100} \times 200$ = Rs.30

Similarly, interest received at the end of the second year = Rs 30.

The total interest (I), received = Rs 30 + Rs 30 = Rs 60

The investor also gets the principal of Rs 200 back at the end of the second year.

In the above example, interest (I) = 15 % of Rs 200 x 2

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$$= \frac{15}{100} \times 200 \times 2$$

Replace, $\frac{15}{100}$ by R, Rs 200 by P and 2 by T

$$I = R \times P \times T$$

$$\text{Thus, } I = PTR$$

Hence, if Rs P is invested at the rate of R% per annum for T years, then the interest, Rs I, earned is given by $I = PTR$

$$\text{Also, } P = \frac{I}{TR}, T = \frac{I}{PR} \text{ and } R = \frac{I}{PT}$$

The sum of principal and interest is called amount (A)

$$\text{Thus, } A = P + I$$

$$A = P + PTR$$

$$A = P (1 + TR)$$

$$\text{So, } P = \frac{A}{1+TR}$$

Examples

1. Sabina borrowed Rs 2,000 for 2 years at 10% interest rate. How much interest will she pay at simple interest?

Solution:

Principal (P) = Rs.2,000

Rate (R) = 10% = $\frac{10}{100}$ p.a

Time (T) = 2 years

We have,

Simple interest (I) = $P \times T \times R$

$$= \text{Rs.}2000 \times 2 \times \frac{10}{100}$$

$$= \text{Rs.}400$$

∴ Sabina will pay Rs.400 as interest.

2. Tripti borrowed Rs 10,000 at a rate of 15 % p.a. for 6 months. How much simple interest did she pay?

Principal (P) =Rs 10,000

Rate (R) = 15 % p.a. = $\frac{15}{100}$ p.a

Time (T) = 6 months = $\frac{6}{12}$ years

We have,

Simple Interest (I) = $P \times T \times R$

$$= \text{Rs.}10,000 \times \frac{6}{12} \times \frac{15}{100}$$

$$= \text{Rs.}750$$

∴ Tripti paid Rs.750 as interest.