Points to remember:

1. Interest: It is the money paid by the borrower to the lender for using the borrowed money.

2. Principal: The total amount of money borrowed by the borrower is called principal.

3. Amount: It is the sum of the interest and principal i.e. the total money paid back to the lender which includes principal and interest.

4. Simple Interest: It is the interest which is payable only on the principal e.g. Simple interest on Rs. 100 at the rate of 5% per annum will be Rs. 5 each year; after one year the amount will be 105, and after two year the amount will be Rs. 110 and so on.

Simple Interest is given by:

$$I = \frac{P*r*t}{100}$$

Where, I = simple interest

P = principal

R = rate of interest

T = number of years

5. Therefore, **Principal** = $\frac{I * 100}{r * t}$

6. Similarly, **Rate of Interest** = $\frac{I * 100}{P * t}$

7. And, **Number of years or time** = $\frac{I * 100}{P * r}$

8. Amount = Principal + Simple Interest

$$= \text{Principal} + \frac{\text{Principal} * \text{rate} * \text{time}}{100}$$

$$= \text{Principal}\left(1 + \frac{\text{rate} * \text{time}}{100}\right)$$

$$\text{Or, } A = P\left(1 + \frac{r * t}{100}\right)$$

Some Quicker Methods:

1.) The payment that can clear a debt of Rs. A for t years at the rate of interest r% per annum is given by:

$$= \frac{100A}{100t + \frac{rt(t-1)}{2}}$$

2) If a sum of money becomes X times in t years at simple rate of interest then the rate of interest is given by:

$$R = \frac{100(X-1)}{t}$$

When different amounts of money mature to the same amount at simple rate of interest, then the ratio of the amounts invested is given by:

$$\frac{1}{100+r1t1} : \frac{1}{100+r2t2} : \frac{1}{100+r3t3} \cdots\cdots \frac{1}{100+rntn}$$

3) There are two equal amounts of money for t1 and t2 years at r1% and r2% respectively. If the difference between their interests is Id then the sum is given by:

$$\frac{Id*100}{r1t1-r2t2}$$

Similarly, if the difference between interests on certain sum for t1 years at the rate of interest r1 and for t2 years at the rate of interest r2% is X then, the sum is given by:

$$\frac{X*100}{r1t1-r2t2}$$

4) If a sum amounts to Rs. P1 in T1 years and Rs. P2 in T2 years at simple rate of interest, then the rate of interest is given by:

$$\text{Rate of interest per annum} = \frac{100(P2-P1)}{(P1t2-P2t1)}$$