

Tips, Formulae and shortcuts for Simple Interest and compound Interest

By

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Cracku Tip 1 – S.I and C.I

- Simple Interest (S.I) and Compound Interest (C.I) is one of the easiest topics in quantitative section.
- Every year, a significant number of questions appear from each of these sections and students should aim to get all the questions right from these topics.
- The number of concepts in these topics is limited and most of the problems can be solved by applying the formulae directly.
- Many students commit silly mistakes in this topic due to complacency and this should be avoided.

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Cracku Tip 2 – S.I & C.I

- In Simple Interest the principal and the Interest (occurred every period) remains constant
- In Compound Interest the Interest earned over the period is added over to the existing principal after every compounding period. So the principal and the Interest over a period changes after every compounding period.
- For the same principal, positive rate of interest and time period (>1 year), the compound interest on the loan is always greater than the simple interest.

Cracku Tip 3 – S.I

- The sum of principal and the interest is called Amount.

$$\text{Amount (A)} = \text{Principal (P)} + \text{Interest (I)}$$

- The Simple Interest (I) occurred over a time period (T) for R% (rate of Interest per annum),

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

Cracku Tip 4 – C.I

- The amount to be paid, if money is borrowed at Compound Interest for N number of years,

$$A = P \left(1 + \frac{R}{100} \right)^N$$

- The Interest occurred, $I = A - P$

$$I = P \left(1 + \frac{R}{100} \right)^N - P$$

Cracku Tip 5 – C.I

If R is rate of interest per year, N is number of years, P is the principal

- If interest is compounded half yearly, then Amount,

$$A = P \left(1 + \frac{R/2}{100} \right)^{2N}$$

- If interest is compounded quarterly, then Amount,

$$A = \left(1 + \frac{R/4}{100} \right)^{4N}$$

Cracku Tip 6 – S.I & C.I

- If interest Rate is $R_1\%$ for first year, $R_2\%$ for second year and $R_3\%$ for 3rd year,

then the Amount, $A = P \left(1 + \frac{R_1}{100}\right) \left(1 + \frac{R_2}{100}\right) \left(1 + \frac{R_3}{100}\right)$

- If a difference between C.I and S.I for certain sum at same rate of interest is given, then Principal = Difference $(100/R)^2$
- When interest is compounded annually but time is in fraction, let $a\frac{b}{c}$ then

the Amount, $A = P \left(1 + \frac{R}{100}\right)^a \left(1 + \frac{R\frac{b}{c}}{100}\right)$

Cracku Tip 7 – S.I & C.I

If R is the rate per annum, then present worth of Rs. K due to N years hence is given by

$$\text{Present worth} = \frac{K}{\left(1 + \frac{R}{100}\right)^N}$$

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Cracku Tip 7 – Quadratic Equations

If $A_n X^n + A_{n-1} X^{n-1} + \dots + A_1 X + A_0 = 0$, then

- Sum of the roots = $-A_{n-1}/A_n$
- Sum of roots taken two at a time = A_{n-2}/A_n
- Sum of roots taken three at a time = $-A_{n-3}/A_n$ and so on
- Product of the roots = $[(-1)^n A_0] / A_n$

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