COMPOUND INTEREST (CI)

Tree Method

P = 10000

R = 10%
T = 2 years

10% 10% 10%

I st
1000

II nd
1000

III rd
1000
100
100
10

10% 100 10%

पहली साल का SI = CI
3 साल SI = 3000
3 CI = 3310
2nd year CI = 1100

Ratio Method

*Ex:- P = 5000
R = 20% वार्षिक
T = 2 वर्ष
CI = ?

20% = 1/5

5 — 6
5 — 6

मूलधन (P) ← 25 36 → मिश्रधन (A)

diff = 11 → CI

5000

1 → 5000/25 (200)

11X200
2200

36X200
7200

* Ex A = 9800
R = $16\frac{2}{3}$% वार्षिक
T = 2 वर्ष
P = ?
CI = ?

$16\frac{2}{3}\% = \frac{1}{6}$

6 ——— 7
6 ——— 7
P ← 36 49 → A
13 → CI

36 X 200 = 7200
13 X 200 = 2600
9800
1 → 9800/49 (200)

2 वर्ष CI का Formula

a% b%

$$2CI = a + b + \frac{a \times b}{100}$$

* Ex:- R = 10%
T = 2 वर्ष

• $2CI = 10 + 10 + \frac{10 \times 10}{100}$
$20 + 1 = 21\%$

• $2SI = 10\% \times 2 = 20\%$

• 2CI − 2SI
21 − 20
1%

* Ex:- R = 5%
T = 2 वर्ष
2CI = ?
↳ effective Rate
प्रभावी दर

• $2CI = 5+5+\frac{5\times5}{100}$

$10+\frac{25}{100}$

$10+0.25$

10.25%

• $2SI = 5\% \times 2$

10%

• $2CI - 2SI$

$10.25 - 10$

0.25%

Ratio Method

$5\% = \frac{1}{20}$

$20 \text{ —— } 21$

$20 \text{ —— } 21$

$400 \quad 441$

$CI = 41$

$\% = \frac{41}{\cancel{400}} \times \cancel{100} = 10.25\%$

✱ **Ex:-** $R = 12\frac{1}{2}\%$

$T = 2$ वर्ष

$2CI = ?$

$12\frac{1}{2}\% = \frac{1}{8}$

$8 \text{ —— } 9$

$8 \text{ —— } 9$

$64 \quad 81$

17

$\% = \frac{17}{\cancel{64}} \times \cancel{100}^{25}$

16

$\frac{425}{16}\% = 26.5\%$

* **Ex:-** I^{st} year = $R_1 = 12\frac{1}{2}\%$

II^{nd} year = $R_2 = 16\frac{2}{3}\%$

2 CI = ?

$12\frac{1}{2}\% = \frac{1}{8}$ $\quad 16\frac{2}{3}\% = \frac{1}{6}$

8 — 9

6 — 7

48 $\quad$ 63

15

$\% = \frac{15}{48} \times 100 = \frac{125}{4}\% = 31.25\%$

3 वर्ष के CI का Formula

	a%	b%	c%
effective Rate	$\left[(a+b+c) + \frac{ab+bc+ac}{100} + \frac{abc}{10000}\right]\%$		

* **Ex:-** R = 10%

T = 3 वर्ष

3CI = ?

10% $\quad$ 10% $\quad$ 10%

$30 + \frac{100+100+100}{100} + \frac{1000}{10000}$

$30 + \frac{300}{100} + 0.1$

- 3CI = 30 + 3 + 0.1 = 33.1%
- 3SI = 10% × 3 = 30%

- 3CI-3SI

  33.1 − 30

  3.1%

* **Ex:-** 2% 3% 4%

$$9+\frac{6+12+8}{100}+\frac{24}{10000}$$

$$9+\frac{26}{100}+0.0024$$

$$9+0.26+0.0024$$

$$9.26+0.0024$$

$$9.2624\%$$