compound Interest

→ C.I = चक्रवृद्धिब्याज

12 वर्ष ⟶ 1500 ₹

$S.I \propto P \times r \times t$

$S.I \propto P$

$S.I \propto r$

$S.I \propto t$

6 वर्ष ⟶ 750 ₹ ✓

6 वर्ष ⟶ 750 × 2 = 1500 ✓

2250 ₹

1 वर्ष → 200₹

15 वर्ष → 3000₹

10 वर्ष → 10×200 = 2000₹

5 वर्ष → 5×200×3 = 3000₹

(+)

5000₹

+60%

18 वर्ष → 2700₹

19 वर्ष → 150₹

12 वर्ष → 12×150 = 1800

6 वर्ष → $6 \times 150 \times \frac{160}{100}$

$= 90 \times 16 = 1440$

1800 + 1440 = 3240

$P \rightarrow 10$
$A \rightarrow 11$ ⊖ S.I = 1₹

1M (10) 1 (9) 1M (8) 1M (7) 1M (6) 1M (5) 1M (4) 1M (3) 1M (2) 1M (1) 1M (0)

10₹ × 1M + 9₹ × 1M + 8₹ × 1M + ⋯⋯ + 1₹ पर 1M

1M [10 + 9 + 8 + ⋯⋯ + 2 + 1]

$\frac{n(n+1)}{2} = \frac{10 \times 11}{2} = 55$

$\frac{\cancel{11}}{\cancel{55}} \times \frac{1}{12} \times \frac{\cancel{8}}{\cancel{100}_{20}} = 1$

$11r = 240$

$r = \frac{240}{11} = 21\frac{9}{11}\%$

P → 10₹
A → 11₹
] S.I = ①

$10+9+8+\cdots\cdots+1 = \frac{n(n+1)}{2} = \frac{10\times11}{2} = 55$

$S.I = \frac{P\times R\times t}{100}$

$1 = \frac{\cancel{55}^{11}\times R\times 1}{\cancel{100}_{20}\times 12}$

$240 = 11R$

$R = \frac{240}{11} = 21\frac{9}{11}\%$

9
10
] S.I = ①

$9+8+7+\cdots\cdots+1 = \frac{n(n+1)}{2} = \frac{9\times10}{2} = 45$

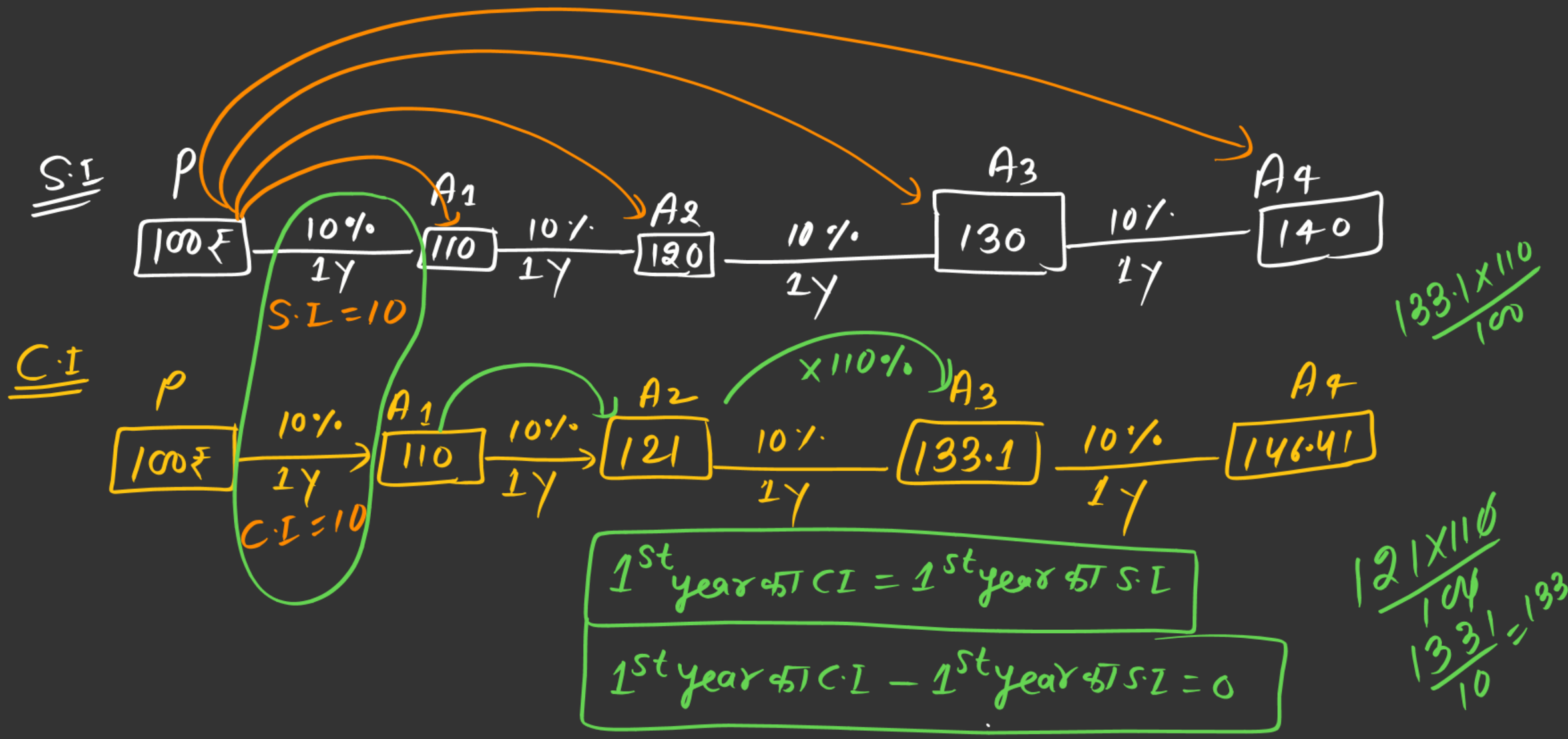
$S.I = \frac{P\times R\times t}{100}$

$1 = \frac{\cancel{45}^{\cancel{9}\,3}\times R\times 1}{\cancel{100}_{20}\times \cancel{12}_{4}}$

$3R = 80$

$R = \frac{80}{3} = 26\frac{2}{3}\% = 26.67\%$

compound Interest



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

$$A = P + C.I$$

$$C.I = A - P$$

$$C.I = P\left(1+\frac{r}{100}\right)^n - P$$

$$C.I = P\left[\left(1+\frac{r}{100}\right)^n - 1\right]$$

(i) वार्षिक $\longrightarrow$ $r\%$ t

(ii) छमाही $\rightarrow$ $\frac{r}{2}\%$ $2t$

(iii) चार माही $\rightarrow$ $\frac{r}{3}\%$ $3t$

(iv) तीमाही $\rightarrow$ $\frac{r}{4}\%$ $4t$

$\frac{12}{4}_3$

$\frac{12}{3} = 4$

2 वर्ष का C.I

$\left(A+B \pm \frac{A \times B}{100}\right)\%$

$$C.I = A+B+\frac{A \times B}{100}$$

$r\%$
$t \rightarrow 2$ वर्ष

$C.I \rightarrow r+r+\frac{r \times r}{100} = \left(2r+\frac{r^2}{100}\right)\%$

$r \rightarrow 3\%$, $t \rightarrow 2$ वर्ष $\Big] C.I = 6.09$

2%, 2 वर्ष $\Big]$ 4.09%

14%, 2 वर्ष $\Big] C.I = 28.00 + 1.96 = 29.96\%$

(i) $r \rightarrow 4\%$, $t \rightarrow 2$ वर्ष $\Big] C.I = 8.16\%$

(ii) $r \rightarrow 5\%$, $t \rightarrow 2$ वर्ष $\Big] C.I = 10.25\%$

(iii) $r \rightarrow 6\%$, $t \rightarrow 2$ वर्ष $\Big] C.I = 12.36\%$

(iv) $r \rightarrow 7\%$, $t \rightarrow 2$ वर्ष $\Big] C.I = 14.49\%$

(v) $r \rightarrow 8\%$, $t \rightarrow 2$ वर्ष $\Big] C.I = 16.64\%$

(vi) $r \rightarrow 9\%$, $t \rightarrow 2$ वर्ष $\Big] C.I = 18.81\%$

(vii) $r \rightarrow 10\%$, $t \rightarrow 2$ वर्ष $\Big] C.I = 20.00 + 1.00 = 21\%$

(viii) $r \rightarrow 12\%$, $t \rightarrow 2$ वर्ष $\Big]$

$\therefore C.I = 24.00 + 1.44 = 25.44\%$