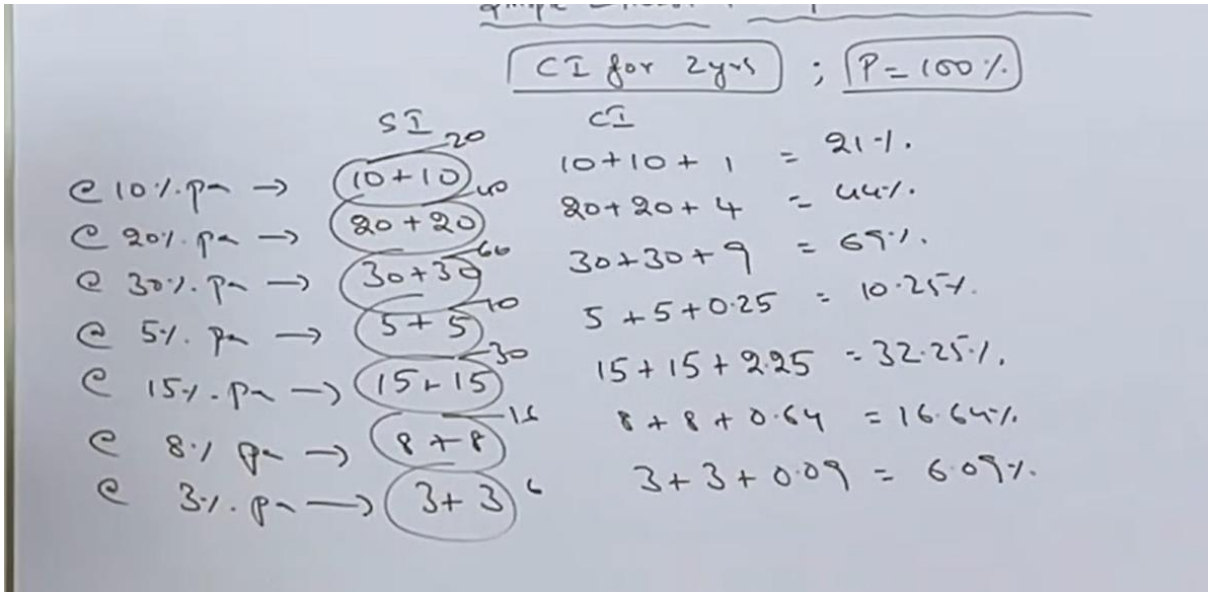
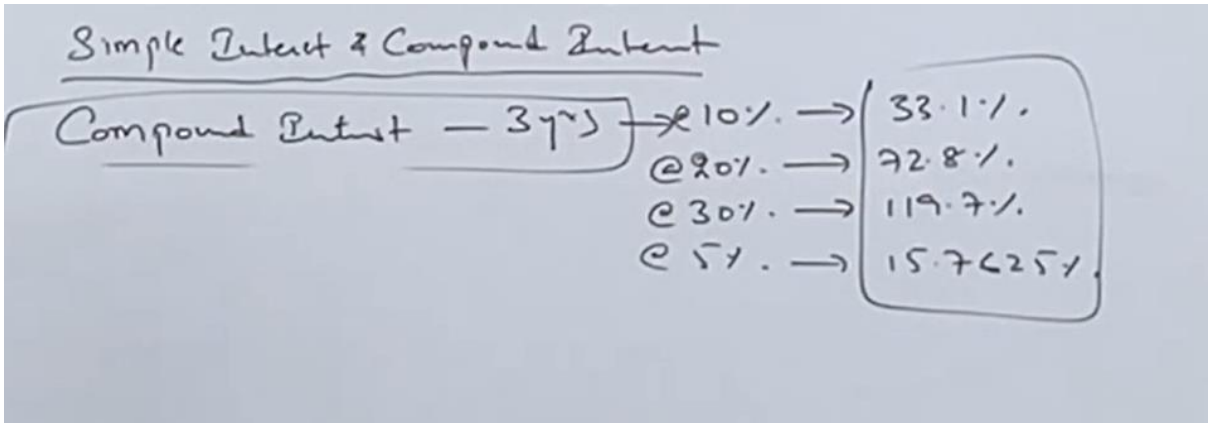
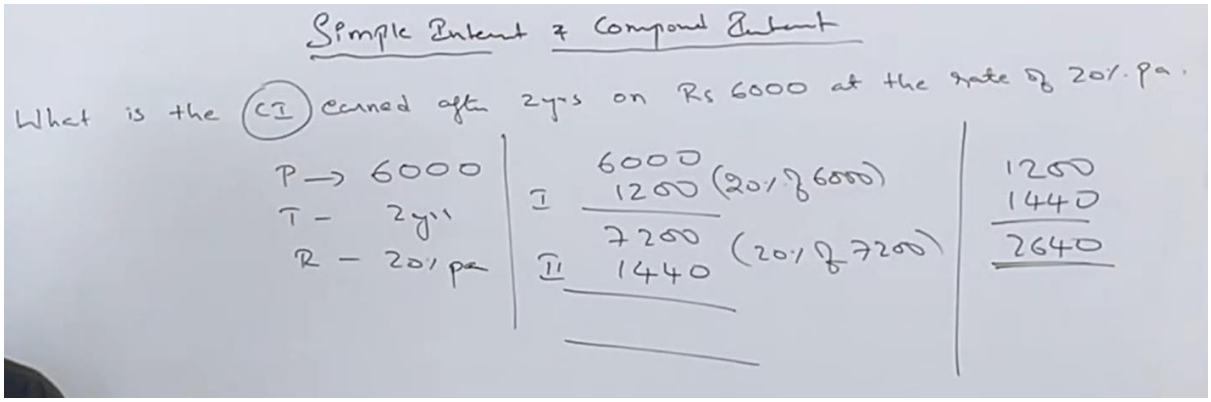
COMPOUND INTREST







Find CI on 16000/- for 3yrs at 5% pa.

P - 16000
T - 3yrs
R - 5% pa

16000
+ 800 (5% of 16000)
16800
+ 840 (5% of 16800)
17640
+ 882 (5% of 17640)

1
800
+840
+882
2522

Simple Interest & Compound Interest

Find the CI on Rs 24000 (P) at 20% pa for 1 year and 6 months, the interest being compounded half yearly? 7944/-

P → 24000
R → 20% pa ⇒ 20/2 → 10% per hy
T → 1½ yrs
CI(H.Y.ly) → 3 halves → 3 times

R
6m 24000
2400 (10% of 24000)
6m 26400
2640 (10% of 26400)
6m 29040
2904 (10% of 29040)

1
2400
2640
2904
7944

Simple Interest & Compound Interest

On what sum (Principal) of money will the CI be Rs 164 in 2yrs (T) at 5% pa (R)?

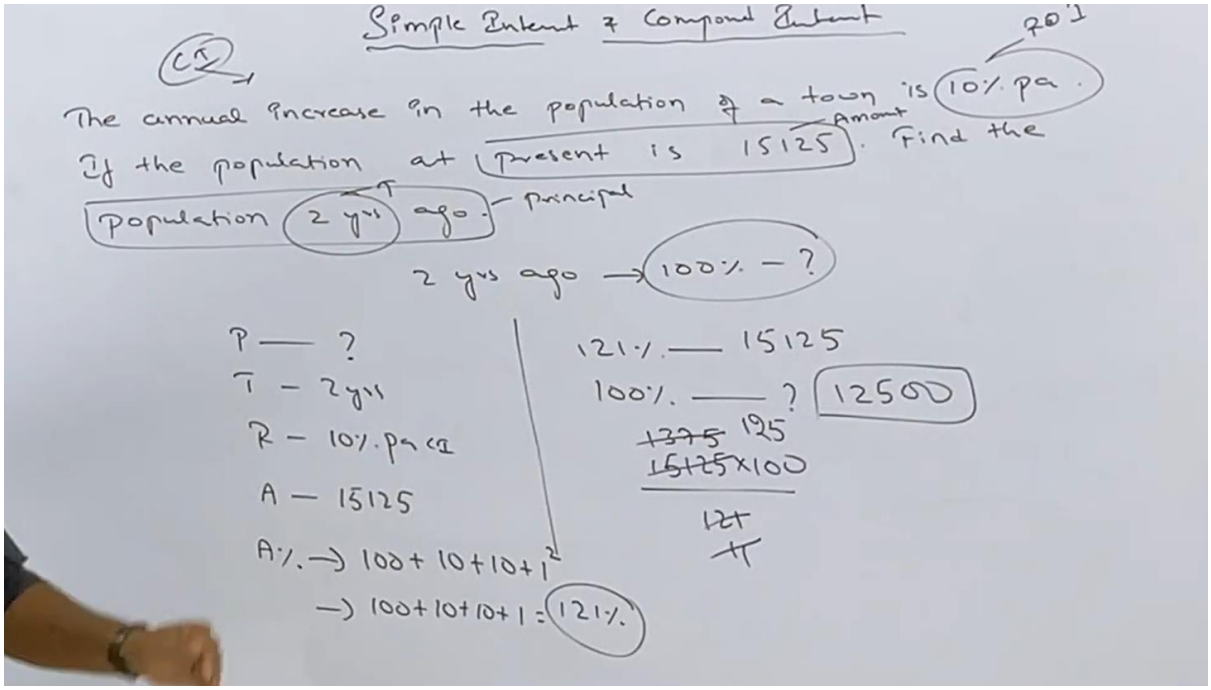
P = ?
T = 2yrs
R = 5% pa
CI = 164

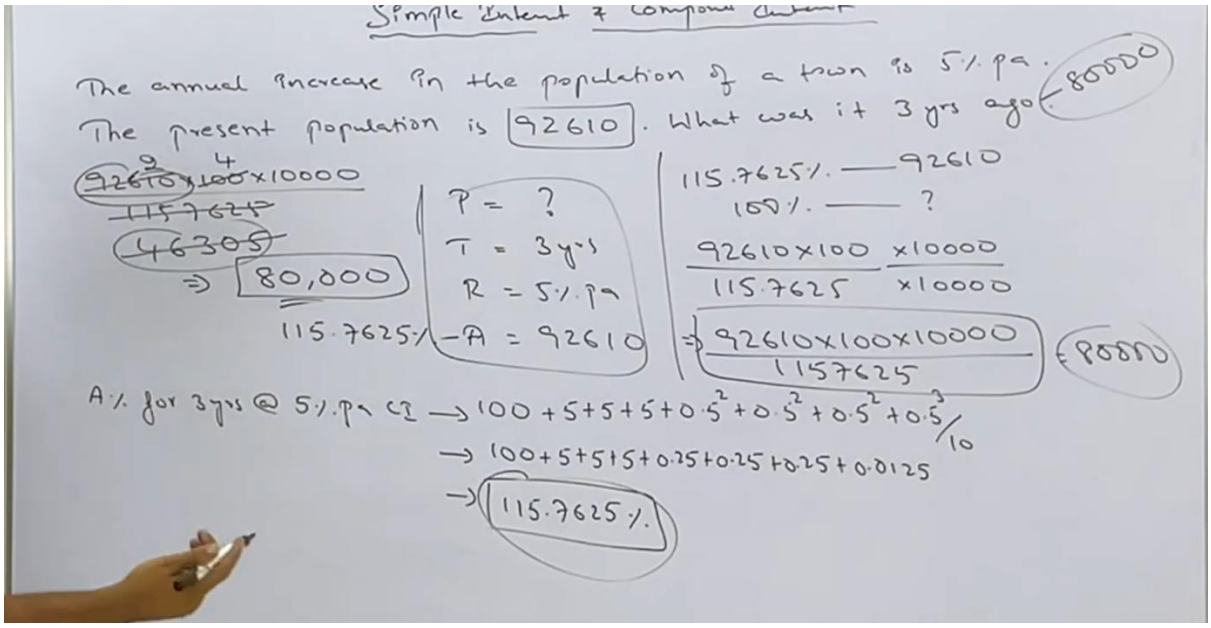
CI → 5 + 5 + 0.5²
→ 5 + 5 + 0.25 = 10.25%

10.25% → 164
100% → ? 1600

$\frac{164 \times 100}{10.25} \times \frac{100}{100}$

$\Rightarrow \frac{\cancel{164}^{4} \times \cancel{100}^{4} \times 100}{\cancel{1025}_{41}} = 1600$


Simple Intent & Compound Intent
CI
The annual increase in the population of a town is 10% pa.
If the population at present is 15125. Find the
population 2 yrs ago.
2 yrs ago → 100% — ?
P — ?
T — 2 yrs
R — 10% pa CI
A — 15125
A% → 100 + 10 + 10 + 1
→ 100 + 10 + 10 + 1 = 121%
121% — 15125
100% — ? 12500
125
15125 × 100
121


Simple Intent & Compound Intent
The annual increase in the population of a town is 5% pa.
The present population is 92610. What was it 3 yrs ago
80000
92610 × 100 × 10000
115.7625
46305
⇒ 80,000
115.7625%
P = ?
T = 3 yrs
R = 5% pa
A = 92610
115.7625% — 92610
100% — ?
92610 × 100 × 10000
115.7625 × 10000
⇒ 92610 × 100 × 10000
11157625
80000
A% for 3 yrs @ 5% pa CI → 100 + 5 + 5 + 5 + 0.5² + 0.5² + 0.5² + 0.5³/10
→ 100 + 5 + 5 + 5 + 0.25 + 0.25 + 0.25 + 0.0125
→ 115.7625%

Simple Interest & Compound Interest

A sum of money lent at C.I amounts to 672/- in 2 yrs and to 714/- in 3 yrs. Find ROI → 6.25%.

2 yrs — 672
3 yrs — 714

$R \rightarrow \frac{Dif}{S.N} \times 100 = \frac{42}{672} \times 100 = 6.25\%$.

Two years ago, the enrollment of school was 30000. At present, it is 37632. Find % inc per annum.

P — 30000
T — 2 yrs
R = ?
A = 37632

$\text{Tot I\%} = \frac{Dif}{SN} \times 100 = \frac{2544}{7632} \times 100$

100

2 yrs = 2544% → $12+12+1.2^2$ → $12+12+1.44$

R = 12% p.a

Three years ago, the population of a country was 400000. At present, it is 691200. Find % inc per annum.

400000 → 100%.
291200 → ?

$\frac{728}{100 \times 291200} / 400000 = 72.8\%$

P → 400000
T → 3 yrs
R → ? 20% p.a
A → 691200
CI → 691200 − 400000
CI → 291200

$\frac{Dif}{SN} \times 100 = \frac{291200}{400000} \times 100$

$= 72.8\%$ — 3 yrs

$20+20+20+2^2+2^2+2^2+2^3$ / 10

$20+20+20+4+4+4+0.8$

$= 72.8\%$.

Simple Interest & Compound Interest

Find the amount at CI on 16,00,000 at 20% p.a for 9 months, the interest being calculated Quately.

(3m) 1600000 + 80000 (5%) = 1680000

(3m) 1680000 + 84000 (5%) = 1764000

(3m) 1764000 + 88200 (5%) = 1852200

T = 9 months = 3Q (3 times)

R = 20% p.a = 20/4 = 5% per Q

CI (Quately)

**

At CI, certain sum doubles itself in 7 years. In how many years, it will become 32 times.

Sol:- 100 — 200 — 400 — 800 — 1600 — 3200 (35 yrs)

7 + 7 + 7 + 7 + 7 + ...

2 —— 7 years

$32 - 2^5$ ⟶ 7×5 = 35 yrs

**

At CI, certain sum 4 times itself in 11 years. In how many years, it will become 64 times.

Sol:- 100 — 200 — 400 — 800 — 1600 — 3200 (35 yrs)

7 + 7 + 7 + 7 + 7 + ...

2 —— 7 years

$32 - 2^5$ ⟶ 7×5 = 35 yrs

4 —— 11 years

$64 - 4^3$ —— 11×3 = 33 yrs

**

At CI, certain sum triple itself in 13 years
In how many years, it will become ~~81~~ times.

Sol:- 100 — 200 — 400 — 800 — 1600 — 3200 (7 + 7 + 7 + 7 + 7 = 35 yrs)

2 — 7 years
$32 = 2^5 \longrightarrow 7 \times 5 = 35$ yrs

4 — 11 years
4^3 — $11 \times 3 = 33$ y

100 — 400 — 1600 — 6400

3 — 13 y
$81 = 3^4$ — $13 \times 4 = 52$ y

Simple Interest & Compound Interest

At what 1st % pa CI, will the sum of money become $1\frac{4167}{8000}$ times in 3 years.

$$1\frac{4167}{8000} = \sqrt[3]{\frac{12167}{8000}} = \frac{23}{20} \text{ times}$$

$\frac{23}{20} \times 100 = 115$

100 — 115

15%.

A sum of money lent at CI amounts to 24200 in 2 yrs and to 29282 in 4 yrs. Find the sum & R% p.

A → 2 yrs — 24200
4 yrs — 29282

R → 10% pa

A → 121% — 24200 (×2)
S → 100% — ? 20000 (×2)

20000

I% = $\frac{\text{Dif}}{\text{SN}} \times 100$

$= \frac{5082}{24200} \times 100$

$= 21\%$

10% & 10%

$10 + 10 + 1^2$

$10 + 10 + 1$

What is the dif b/w SI & CI for 2 years at the rate of 30% p.a on Rs 5400?

Dif b/w SI & CI @ 30% p.a for 2 yrs $= 3^2 = 9\%$.

$\Rightarrow 9\%$ of 5400 = 486

Simple Interest & Compound Interest

Dif b/w CI & SI for 2 yrs @ 15% p.a is Rs 225. Find Sum.

$2.25\% \xrightarrow{\times 100} 225$

$100\% \xrightarrow{\times 100} ?$ 10000

Dif b/w SI & CI @ 15% p.a for 2 yrs $= 1.5^2 = 2.25\%$.