1+10

Cl- X (Maths).
EX- 6.1. (Compound Interest).

S.N-1

Principal = Rs 5000 Time (n) = 2 yrs. Rate of interest = 8.5%

$\therefore$ Amount $= P\left(1+\frac{r}{100}\right)^n = 5000\left(1+\frac{8.5}{100}\right)^2$

$= 5000 \times \frac{1085}{1000} \times \frac{1085}{1000} = 5886.13$ (app)

After 2 yrs I shall get Rs 5886.13 (app).

S.N-6

After 2 yrs, Amount $= P\left(1+\frac{8}{100}\right)^2$ [where $n=2$, $r=8\%$]

$= P \times \frac{108}{100} \times \frac{108}{100}$ [Suppose she borrowed Rs P].

$\therefore$ A.T.P, $P \times \frac{108}{100} \times \frac{108}{100} = P = 2496$

$\Rightarrow P\left(\frac{108^2-100^2}{10000}\right) = 2496$

$\Rightarrow P = \frac{2496 \times 10000}{1664} = 15000.$

$\therefore$ She borrowed Rs 15000.

S.N-10

$P = 12000$
$n = 2$ yrs
$r = 7.5\%$

$\therefore A = 12000\left(1+\frac{7.5}{100}\right)^2$

$= 12000\left(1+\frac{3}{40}\right)^2 = 12000 \times \frac{43}{40} \times \frac{43}{40}$

$= 13867.50$

$\therefore CI = 13867.50 - 12000 = 1867.50$

$\therefore SI = \frac{12000 \times 2 \times 7.5}{100} = 1800$

$\therefore$ difference between CI and SI $= 1867.50 - 1800$

$= 67.50$.

S.N-12 CI for 2 yrs $= P\left(1+\frac{9}{100}\right)^2 - P$

$= P\left(\frac{109^2 - 100^2}{10000}\right) = \frac{1881P}{10000}$.

SI for 2 yrs $= \frac{P \times 2 \times 9}{100} = \frac{18P}{100}$.

$\therefore$ A.T.P $\frac{1881P}{10000} - \frac{18P}{100} = 129.60$

$\Rightarrow \frac{81P}{10000} = 129.60 \Rightarrow P = \frac{129.60 \times 10000}{81}$

$= Rs\ 16000$

$\therefore$ The sum of money $= Rs\ 16000$.

SN-16 Let the principal be P and rate of interest $= y\%$.

$\therefore$ SI for 1 yr $= \frac{Py}{100}$ $\therefore$ ATP $\frac{Py}{100} = 50$ --(1)

$\therefore$ SI for 2 yrs $= 2 \times 50 = 100$

$\therefore$ After 2 yrs, SI $= \frac{(P+50)y}{100}$.

$\therefore$ ATP, $\frac{(P+50)y}{100} - \frac{Py}{100} = 102 - 100$

$\Rightarrow \frac{Py + 50y - Py}{100} = 2$

$\Rightarrow \frac{50y}{100} = 2 \Rightarrow y = 4$.

$\therefore$ principal $= \frac{50 \times 100}{4} = Rs\ 1250$.

Cl-X (maths)
Ex-6.1 (compound Interest)

S.N-19

$P = ₹6250$

$n = \frac{9}{12} = \frac{3}{4}$ yrs.

$r = 10\%$.

$\therefore$ After 9 months,

$$A = P\left(1+\frac{\frac{r}{4}}{100}\right)^{4\times\frac{3}{4}}$$

$$= 6250\left(1+\frac{\frac{10}{4}}{100}\right)^{3}$$

$$= 6250\left(1+\frac{10}{400}\right)^{3}$$

$$= 6250 \times \frac{410}{400} \times \frac{410}{400} \times \frac{410}{400}$$

$= ₹6730.57$ (app)

$\therefore CI = 6730.57 - 6250$

$= Rs\ 480.57$.

S.N-21. Let the required time $= x$ yrs.

$\therefore A = 40000\left(1+\frac{8}{100}\right)^{x}$

$\therefore$ A.T.P $40000\left(1+\frac{8}{100}\right)^{x} = 46656$

$$\Rightarrow \left(\frac{108}{100}\right)^{x} = \frac{46656}{40000} = \frac{11664}{10000} = \left(\frac{108}{100}\right)^{2}$$

$\therefore x = 2$

$\therefore$ After 2 yrs, the amount will be ₹46656.

S.N-25 Here

$P = Rs\ 1600$. $n = 1\frac{1}{2} = \frac{3}{2}$ yrs.

$r = 10\%$.

$\therefore$ After $\frac{3}{2}$ yrs, Amount $= P\left(1+\frac{\frac{r}{2}}{100}\right)^{2\times\frac{3}{2}}$

$$= 1600\left(1+\frac{\frac{10}{2}}{100}\right)^{3}$$

$$= 1600 \times \frac{21}{20} \times \frac{21}{20} \times \frac{21}{20}.$$

$= ₹1852.20$.

$\therefore CI = 1852.20 - 1600$

$= Rs\ 252.20$.