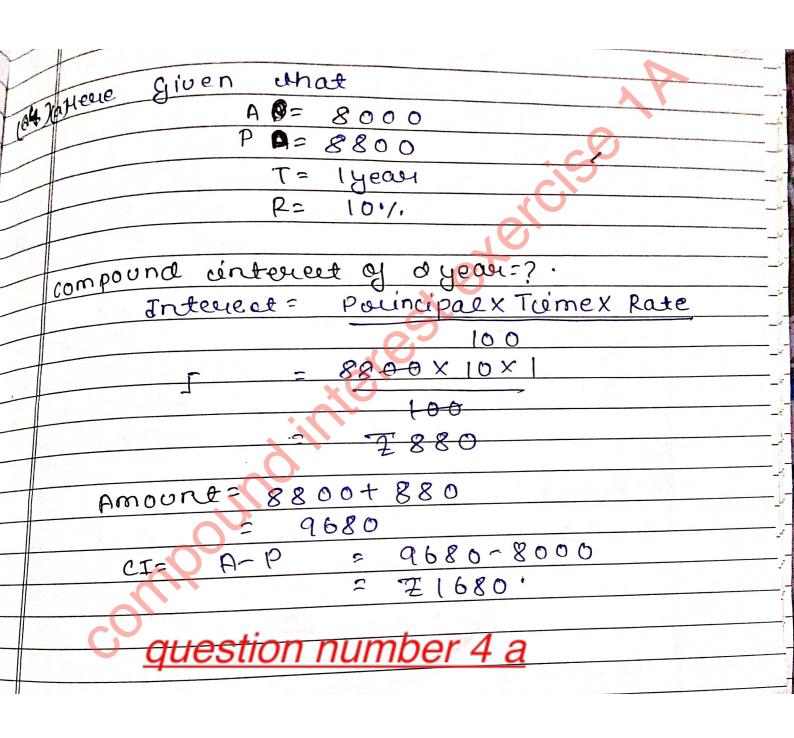Given: sum = ₹ 30,000 , time = 3 years , intrest = $7\frac{1}{2}$% p.a. CI.

To find: (i) sum at the end of second year , (ii) sum at the end of third year , (iii) total intrest in three years.

Solution: (i) Intrest during first year = $\dfrac{30,000 \times 1 \times 15}{100 \times 2}$ $\left[I = \dfrac{P \times T \times R}{100} \right]$

= ₹ 2250.

Sum after first year = 30000 + 2250 = ₹ 32,250 $[A = P + I]$

Now Intrest during second year = $\dfrac{32,250 \times 1 \times 15}{100 \times 2}$ = $\dfrac{9675}{4}$

= ₹ 2418.75

∴ Sum after two years = 32,250 + 2418.75 = ₹ 34668.75

(ii) Intrest during third year = $\dfrac{34668.75 \times 1 \times 15}{100 \times 2}$ = $\dfrac{83205}{32}$

= ₹ 2600.16

Sum after three years = 34668.75 + 2600.16 = ₹ 37,268.91

(iii) Total intrest earned in 3 years = sum after 3 years − original sum = ₹ 37,268.91 − 30,000 = ₹ 7268.91.

Answer: Hence values for (i) ₹ 34668.75 , (ii) ₹ 37,268.91 and (iii) ₹ 7268.91

(4)a Here Given that

$$A = 8000$$
$$P = 8800$$
$$T = 1 \text{ year}$$
$$R = 10\%$$

compound interest of 1 year = ?.

$$\text{Interest} = \frac{\text{Principal} \times \text{Time} \times \text{Rate}}{100}$$

$$I = \frac{8800 \times 10 \times 1}{100}$$

$$= ₹880$$

Amount = 8800 + 880
$$= 9680$$

$$CI = A - P = 9680 - 8000$$
$$= ₹1680.$$

question number 4 a

b

4b

Interest four 3 year = $\dfrac{9680 \times 10 \times 1}{100}$

= 968

Amount of 3 year = 9680 + 968

= 10648.

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(a) Here given that

$$P = 2500$$
$$T = 2\ year$$
$$R = 10\%$$

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

$$CI = 2500\left[\left(1+\frac{10}{100}\right)^2\right]$$

$$= 2500 \times \left(\frac{110}{100}\right)^2$$

$$= 2500 \times \frac{110 \times 110}{100 \times 100}$$

$$= 25 \times 11 \times 11$$
$$= ₹ 3025$$

$$CI = A - P = 3025 - 2500$$
$$= 525.$$

(b) Here given that
$$P = 2000, \quad T = 3\ year, \quad R = 12\frac{1}{2}\%\ p.a = \frac{25}{2}.$$

Now

$$SI = \frac{PRT}{100}$$

5a,b page 1

$$\Rightarrow \frac{\overset{10}{\cancel{2000}} \times 3 \times 25}{\underset{}{1 \cancel{00}} \times \cancel{2}}$$

$$\Rightarrow 10 \times 3 \times 25$$

$$= 750 \text{ Ans.}$$

Since b is larger than a'

$$750 > 525$$

Sol. Investment made by Mr Patel (P)

= Rs. 80000

Rate (R) = 10% p.a.

Period = 2 years

∴ Interest for the first year = $\dfrac{PRT}{100}$

= Rs. $\dfrac{80000 \times 10 \times 1}{100}$ = Rs. 8000

∴ Amount after first year = Rs. 80000 + 8000

= Rs. 88000

Principal for the second year = Rs. 88000

Interest for the second year

= Rs. $\dfrac{88000 \times 10 \times 1}{100}$ = Rs. 8800

∴ Amount after second year = 88000 + 8800

= Rs. 96800

∴ Interest for 2 year = 96800 − 80000

= Rs. 16800

Investment made by Ms Kapoor

= Rs. 100000

Rate (R) = 8%

Period = 3 years

Interest for the first year = $\dfrac{PRT}{100}$

= $\dfrac{100000 \times 8 \times 1}{100}$ = Rs. 8000

Amount after first year = 100000 + 8000

= Rs. 108000

or Principal for the second year

= Rs. 108000

Interest for the second year = $\dfrac{108000 \times 8 \times 1}{100}$

= Rs. 8640 .

∴ Amount after second year = Rs. 108000 + 8640 = Rs. 116640

or principal for the third year = Rs. 116640

Interest for the third year = $\dfrac{116640 \times 8 \times 1}{100}$

= Rs. 9331.20

∴ Amount after third year = Rs. 116640 + 9331.20 = Rs. 125971.20

∴ Interest for 3 years = Rs. 125971.20 − 100000.00 = 25971.20

It is clear that Ms Kapoor will get more interest = Rs. 25971.20

Sol. Investment by a man (P) = Rs. 30,000

Period = 2 years

Rate = 7.5% p.a. for first year and 8% for the second year

Interest for the first year = PRT

$$= \frac{30000 \times 15 \times 1}{100 \times 2} = Rs. \ 2250$$

∴ Amount after first year = P + Int.

= Rs. 30000 + 2250 = Rs. 32250

or principal for the second year = Rs. 32250

Rate = 8%

∴ Interest for the second year = $\dfrac{32250 \times 8 \times 1}{100}$

= Rs. 2580

∴ Amount after second year = Rs. 32250 + 2580 = Rs. 34830

Investment by a man = Rs. 40000

Period = 3 years

Rate for the first two years = 8% p.a.

and for third year = 10%

Interest for the first year = $\dfrac{PRT}{100}$

= Rs. $\dfrac{40000 \times 8 \times 1}{100}$ = Rs. 3200

Amount after first year = P + Int.

= Rs. 40000 + 3200 = Rs. 43200

or Principal for the second year = Rs. 43200

Interest for the second year = $\dfrac{43200 \times 8 \times 1}{100}$

= Rs. 3456

∴ Amount after second year = Rs. 43200 + 3456 = Rs. 46656

or principal for the third year = Rs. 46656

∴ Interest for the third year = $\dfrac{46656 \times 10 \times 1}{100}$

= Rs. $\dfrac{466560}{100}$ = RS. 4665.60

∴ Amount after third year

= Rs. 46656 + 4665.60 = Rs. 51321.60

Total interest for 3 years = A − P

= Rs. 51321.60 − 40000 = Rs. 11321.60

Given: A man invested Rs. 40,000 for 3 years at the compound interest rate of 8% p.a. After 2 years, the rate of interest raised to 10%.

To find: the amount received after 3 years.

Solution:

P = 40,000 Rs. $r = 8\%$.

Sum at the end of 2 years $= P\left(1 + \dfrac{r}{100}\right)^n$

here $n = 2$.

$=. 40,000\left(1 + \dfrac{8}{100}\right)^2$

$= 40000\left(\dfrac{108}{100}\right)^2$

$= 46,656$.

After 2 years, interest raised to 10%.

Sum at the end of 3rd year $= P\left(1 + \dfrac{r}{100}\right)^n$

$P = 46,656$ $n = 1$ $r = 10\%$.

$= 46656\left(1 + \dfrac{10}{100}\right)^1$

$= 46656\left(\dfrac{110}{100}\right)$

$= 51,321.60$.

Amount received after 3 years = Rs. 51,321.60.

Answer:

Hence, the amount received after 3 years is Rs. 51,321.60.

10B