Percentage

Lecture sheet – 8

Creative Question

Simple Interest

Solution

1. **a)** Given,

Principal = 4500 tk

Rate of Interest = 8%

Time = 10 years

We know,

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

$$= \frac{4500 \times 8 \times 10}{100} \text{tk}$$

$$= 3600 \text{ tk}$$

∴ He would pay back in 10 years = Principal + Interest

$$= (4500 + 3600) \text{tk}$$

$$= 8100 \text{ tk}$$

Ans: 8100 tk

b) Given,

Principal = 4500 tk

Rate of Interest = 8 %

Interest = 2520 tk

We know,

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

$$= \frac{2520 \times 100}{4500 \times 8}$$

= 7 years

Ans: 7 years.

2. a) Given,

Principal = 3000 tk

Amount = 3300 tk

∴ Interest = Amount - Principal

= (3300 – 3000) tk

= 300 tk

Time = 1 year

We know,

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

$$= \frac{300 \times 100}{3000 \times 1}\%$$

= 10 %

Ans: 10 %

b) Given,

Principal = 10000 tk

Time = 2 years

From 'a' we get, Rate of interest = 10%

We know,

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

$$= \frac{10000 \times 10 \times 2}{100} \text{ tk}$$

$$= 2000 \text{ tk}$$

∴ He will pay back after 2 years = (10000+2000) tk

$$= 12000 \text{ tk}$$

Ans: 12000 tk.

3. a) Given,

Rate of interest = 20%

Interest = 2000 tk

Time = 1 years

We know,

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

$$= \frac{2000 \times 100}{20 \times 1} \text{ tk}$$

$$= 10000 \text{ tk}$$

Ans: 10000 tk

b) The principal and interest in total = (10000+2000) tk

$$= 12000 \text{ tk}$$

Ans: 12000 tk

c) Given,

Rate of interest = 15%

Time = 1 year

From 'a' we get, Principal = 10000 tk

We know,

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

$$= \frac{10000 \times 15 \times 1}{100}$$

$$= 1500 \text{ tk}$$

Ans: 1500 tk

4. *a)* Annual Interest $= \dfrac{Principal \times Rate\ of\ Interest \times Time}{100}$

b) Given,

Principal = 4500 tk

Rate of interest = 8 %

Time = 8 years

We know,

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

$$= \frac{4500 \times 8 \times 8}{100} \text{ tk}$$

$$= 2880 \text{ tk}$$

Ans: 2880 tk.

c) Given,

Principal = 4500 tk

From 'b' we get,

He would pay back as interest after 8 years = 2880 tk

∴ He would pay back in total after 8 years = (4500+2880) tk

= 7380 tk

Ans: 7380 tk.

5. a) Given,

Total population = 1620

Educated person = 60%

∴ Number of educated person = (60% of 1620) persons

$= (\frac{60}{100} \times 1620)$ persons

= 972 persons

Ans: 972 persons.

b) Given,

Total population = 1620

Educated person = 75%

∴ Number of educated person = (75% of 1620) persons

$= (\frac{75}{100} \times 1620)$ persons

= 1215 persons

Ans: 1215 persons.

6. a) The interest rate which is typically noted on an annual basis known as the annual percentage rate. It is denoted by percentage (%).

b) Given,

Amount = 98000 Taka
Principal = 50000 Taka
Time = 8 years

∴Interest in 8 years = (98000 - 50000) Taka
= 48000 Taka

Now,
Interest in 8 years = 48000 taka

∴ " " 1 " = (48000 ÷ 8) Taka

= 6000 Taka

Ans: 6000 Taka.

c) Given,

Principal = 50000 Taka

Interest = 48000 Taka

Time = 8 years

We know,

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

$$= \frac{48000 \times 100}{50000 \times 8}\%$$

$$= 12\%$$

Ans: 12%

7. **a)** Principal $= \dfrac{Interest \times 100}{Rate\ of\ interest \times Time}$

Interest $= \dfrac{Rate\ of\ interest \times Principal \times Time}{100}$

b) Given,

Principal = 1500 Taka

Time = 10 years

Rate of interest = 10%

We know,

Interest $= \dfrac{Rate\ of\ interest \times Principal \times Time}{100}$

$= \dfrac{10 \times 1500 \times 10}{100}$ Taka

=1500 Taka

∴ Principal interest = (Principal + Interest)

= (1500 + 1500) Taka

=3000 Taka

Ans: 3000 Taka.

c) Given,

Principal = 2000 Taka

Rate of interest = 10 %

Time = 7 years

We know,

Interest $= \dfrac{Rate\ of\ interest \times Principal \times Time}{100}$

$$= \frac{10 \times 2000 \times 7}{100} \text{ Taka}$$

$$= 1400 \text{ Taka}$$

Ans: 1400 Taka.

8. **a)** Given,

Principal = 50000 Taka

Amount = 98000 Taka

Time = 8 years

Interest in 8 years = (Amount - Principal)

= (98000 - 50000) Taka

= 48000 Taka

b) Given,

Principal = 50000 Taka

Time = 8 years

From 'a' we get, Interest = 48000 taka

We know,

Rate of interest $= \frac{Interest \times 100}{Principal \times Time}$ %

$$= \frac{48000 \times 100}{50000 \times 8} \text{ %}$$

$$= 12 \text{ %}$$

Ans: 12 %

c) Given,

Principal = 50000 Taka

Interest = 30000 Taka

From 'b' we get, Rate of interest = 12%

We Know,

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

$$= \frac{30000 \times 100}{50000 \times 12} \text{ years}$$

$$= 5 \text{ years}$$

Ans: 5 years.