



Class – 5

Chapter – 9

## Percentage

### Revision Worksheet – 1

#### Solution

Date – 15/08/2020

1. Shamol Chakma borrowed 4500 Taka from a bank and an annual interest of 8% were always charged on the principal.

- How much Taka would he pay back in 10 years?
- Several years later, the annual interest summed up to 2520 Taka. How many years did he borrow?

#### *Solution:*

a) Given,

$$\text{Principal} = 4500 \text{ tk}$$

$$\text{Rate of Interest} = 8\%$$

$$\text{Time} = 10 \text{ years}$$

We know,

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

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

$$= 3600 \text{ tk}$$

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,

$$\begin{aligned}\text{Time} &= \frac{\text{Interest} \times 100}{\text{Principal} \times \text{Rate of Interest}} \\ &= \frac{2520 \times 100}{4500 \times 8} \\ &= 7 \text{ years}\end{aligned}$$

*Ans:* 7 years

**2. Shiratul borrowed 3000 Taka from a bank and paid back 3300 Taka after a year.**

**a.** What was the annual interest rate of the bank?

**b.** How much Taka would he pay back after 2 years if he borrowed 10000 Taka?

*Solution:*

*a)* Given,

Principal = 3000 tk

Amount = 3300 tk

Interest = Amount - Principal

= (3300 – 3000) tk

= 300 tk

Time = 1 year

We know,

$$\begin{aligned}\text{Rate of interest} &= \frac{\text{Interest} \times 100}{\text{Principal} \times \text{Time}} \% \\ &= \frac{300 \times 100}{3000 \times 1} \% \\ &= 10 \%\end{aligned}$$

**Ans:** 10 %

**b)** Given,

Principal = 10000 tk

Time = 2 years

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

We know,

$$\begin{aligned}\text{Interest} &= \frac{\text{Principal} \times \text{Rate of Interest} \times \text{Time}}{100} \\ &= \frac{10000 \times 10 \times 2}{100} \text{ tk} \\ &= 2000 \text{ tk}\end{aligned}$$

He will pay back after 2 years = (10000+2000) tk  
= 12000 tk

**Ans:** 12000 tk

**3. Some money was borrowed from a bank with an annual interest of 20% and paid the total annual interest 2000 taka.**

- a. How much was the principal?
- b. How much was the principal and interest total?
- c. How much interest would be paid if the annual interest rate was 15%?

***Solution:***

**a)** Given,

$$\text{Rate of interest} = 20\%$$

$$\text{Interest} = 2000 \text{ tk}$$

$$\text{Time} = 1 \text{ years}$$

We know,

$$\begin{aligned} \text{Principal} &= \frac{\text{Interest} \times 100}{\text{Rate of Interest} \times \text{Time}} \\ &= \frac{2000 \times 100}{20 \times 1} \text{ tk} \\ &= 10000 \text{ tk} \end{aligned}$$

***Ans:*** 10000 tk

**b)** The principal and interest in total = (10000+2000) tk  
= 12000 tk

***Ans:*** 12000 tk

**c)** Given,

$$\text{Rate of interest} = 15\%$$

$$\text{Time} = 1 \text{ year}$$

From 'a' we get, Principal = 10000 tk

We know,

$$\begin{aligned} \text{Interest} &= \frac{\text{Principal} \times \text{Rate of Interest} \times \text{Time}}{100} \\ &= \frac{10000 \times 15 \times 1}{100} \\ &= 1500 \text{ tk} \end{aligned}$$

***Ans:*** 1500 tk

**4. Rony borrowed 4500 Taka from a bank and an annual interest of 8% were always charged on the principal.**

- a. Write down the formula of “Annual interest”.
- b. How much taka would he pay back as interest in 8 years?
- c. How much money would he pay back after 8 years?

*Solution:*

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

b) Given,

$$\text{Principal} = 4500 \text{ tk}$$

$$\text{Rate of interest} = 8 \%$$

$$\text{Time} = 8 \text{ years}$$

We know,

$$\begin{aligned} \text{Interest} &= \frac{\text{Principal} \times \text{Rate of Interest} \times \text{Time}}{100} \\ &= \frac{4500 \times 8 \times 8}{100} \text{ tk} \\ &= 2880 \text{ tk} \end{aligned}$$

*Ans:* 2880 tk

c) Given,

$$\text{Principal} = 4500 \text{ tk}$$

From ‘b’ we get,

$$\text{He would pay back as interest after 8 years} = 2880 \text{ tk}$$

$$\begin{aligned} \text{He would pay back in total after 8 years} &= (4500 + 2880) \text{ tk} \\ &= 7380 \text{ tk} \end{aligned}$$

*Ans:* 7380 tk

**5. The total population of Modhupur village is 1620 and 60% of them are educated.**

a. How many educated people are there in that village?

b. If the educated people are 75%, how many educated people are there in that village?

*Solution:*

a) Given,

Total population = 1620

Educated person = 60%

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

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

$$= 972 \text{ persons}$$

*Ans:* 972 persons.

b) Given,

Total population = 1620

Educated person = 75%

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

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

$$= 1215 \text{ persons}$$

*Ans:* 1215 persons.

**6. 50000 taka was borrowed from a bank and 98000 taka was paid back 8 years later.**

a. What is called the annual interest?

b. What is the annual interest of 1 year?

c. How much annual interest rate was charged on the principal?

**Solution:**

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

$$\begin{aligned}\therefore \text{Interest in 8 years} &= (98000 - 50000) \text{ Taka} \\ &= 48000 \text{ Taka}\end{aligned}$$

Now,

Interest in 8 years = 48000 taka

$$\begin{aligned}\therefore \text{“ “ 1 “} &= (48000 \div 8) \text{ Taka} \\ &= 6000 \text{ Taka}\end{aligned}$$

**Ans:** 6000 Taka.

c) Given,

Principal = 50000 Taka

Interest = 48000 Taka

Time = 8 years

We know,

$$\begin{aligned}\text{Rate of interest} &= \frac{\text{Interest} \times 100}{\text{Principal} \times \text{Time}} \% \\ &= \frac{48000 \times 100}{50000 \times 8} \% \\ &= 12\%\end{aligned}$$

**Ans:** 12%

7. A loan of 50000 Taka is taken from a bank. After 8 years an amount of 98000 Taka is being paid.

- a. What is the interest in 8 years?
- b. What is rate of annual interest?
- c. In how many years the interest would become 30000 Taka?

*Solution:*

a) Given,

Principal = 50000 Taka

Amount = 98000 Taka

Time = 8 years

$$\begin{aligned}\text{Interest in 8 years} &= (\text{Amount} - \text{Principal}) \\ &= (98000 - 50000) \text{ Taka} \\ &= 48000 \text{ Taka}\end{aligned}$$

b) Given,

Principal = 50000 Taka

Time = 8 years

From 'a' we get, Interest = 48000 taka

We know,

$$\begin{aligned}\text{Rate of interest} &= \frac{\text{Interest} \times 100}{\text{Principal} \times \text{Time}} \% \\ &= \frac{48000 \times 100}{50000 \times 8} \% \\ &= 12 \%\end{aligned}$$

**Ans:** 12 %

c) Given,

Principal = 50000 Taka

Interest = 30000 Taka

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



We Know,

$$\begin{aligned}\text{Time} &= \frac{\text{Interest} \times 100}{\text{Principal} \times \text{Rate of interest}} \\ &= \frac{30000 \times 100}{50000 \times 12} \text{ years} \\ &= 5 \text{ years}\end{aligned}$$

**Ans:** 5 years.

**8. A seller sold an item of 1600 taka at a discount of 20%.**

- a. What was the selling price of the item?
- b. What will the selling price be if the item is sold with the profit of 20%?

**Solution:**

a) Given,

$$\begin{aligned}\text{Cost price} &= 1600 \text{ tk} \\ \text{Loss \%} &= 20 \%\end{aligned}$$

We know,

$$\begin{aligned}\text{Selling Price} &= \left[ \frac{(100 - \text{loss}\%)}{100} \times \text{Cost price} \right] \\ &= \left[ \frac{(100 - 20)}{100} \times 1600 \right] \text{ tk} \\ &= \left( \frac{80 \times 1600}{100} \right) \text{ tk} \\ &= 1280 \text{ tk}\end{aligned}$$

**Ans:** 1280 tk

b) Given,

$$\begin{aligned}\text{Cost price} &= 1600 \text{ tk} \\ \text{Profit \%} &= 20 \%\end{aligned}$$

We know,

$$\text{Selling Price} = \left[ \frac{(100 + \text{Profit}\%)}{100} \times \text{Cost price} \right]$$

$$\begin{aligned}
&= \left[ \frac{(100+20)}{100} \times 1600 \right] \text{ tk} \\
&= \left( \frac{120 \times 1600}{100} \right) \text{ tk} \\
&= 1920 \text{ tk.}
\end{aligned}$$

**Ans:** 1920 tk.

**9. A fan is sold at 1280 taka at a discount of 20%.**

- a. What is the cost price of the fan?
- b. If the fan sold at 1520 taka, what is the percentage of profit or loss?

**Solution:**

a) Given,

$$\text{Selling Price} = 1280 \text{ tk}$$

$$\text{Loss \%} = 20\%$$

We know,

$$\begin{aligned}
\text{Cost price} &= \left[ \frac{100}{(100 - \text{Loss}\%)} \times \text{selling price} \right] \\
&= \left[ \frac{100}{(100 - 20)} \times 1280 \right] \text{ tk} \\
&= \left( \frac{100 \times 1280}{100} \right) \text{ tk} \\
&= 1600 \text{ tk}
\end{aligned}$$

**Ans:** 1600 tk

b) Given,

$$\text{Selling price} = 1520 \text{ tk}$$

From 'a' we get, cost price = 1600 tk

$$\text{Loss} = \text{Cost price} - \text{Selling price}$$

$$= (1600 - 1520) \text{ tk}$$

$$= 80 \text{ tk}$$

We know,

$$\begin{aligned}
\text{Loss \%} &= \frac{\text{Loss}}{\text{Cost price}} \times 100\% \\
&= \frac{80}{1600} \times 100\% \\
&= 5\%
\end{aligned}$$

**Ans:** 5 %

**10. A seller brought a pen at 20 taka and sold at 25 taka.**

- a. What was the percentage of his profit?
- b. What will the selling price be with the profit of 10%?

**Solution:**

**a)** Given,

Cost price = 20 Taka

Selling price = 25 Taka

$$\begin{aligned}\therefore \text{Profit} &= (25 - 20) \text{ Taka} \\ &= 5 \text{ Taka}\end{aligned}$$

We know,

$$\begin{aligned}\text{Profit}\% &= \frac{\text{Profit}}{\text{Cost price}} \times 100\% \\ &= \frac{5}{20} \times 100\% \\ &= 25\%\end{aligned}$$

**Ans:** 25%

**b)** Given,

Cost price = 20 Taka

Profit % = 10%

We know,

$$\begin{aligned}\text{Selling Price} &= \left[ \frac{(100 + \text{Profit}\%)}{100} \times \text{Cost price} \right] \\ &= \left[ \frac{(100 + 10)}{100} \times 20 \right] \text{ Taka} \\ &= \left( \frac{110 \times 20}{100} \right) \text{ Taka} \\ &= 22 \text{ Taka}\end{aligned}$$

**Ans:** 22 Taka.

**11. A seller bought a basket full of mangoes at 1200 taka and sold them with profit of 10%.**

- a. What was the selling price of the mangoes?
- b. How much taka more would the selling price be if he wanted to sell the mangoes with profit of 15%?

***Solution:***

**a)** Given,

Cost price = 1200 Taka

Profit% = 10%

We know,

$$\text{Selling Price} = \left[ \frac{(100 + \text{Profit}\%)}{100} \times \text{Cost price} \right]$$

$$= \left[ \frac{(100 + 10)}{100} \times 1200 \right] \text{ Taka}$$

$$= \left( \frac{110 \times 1200}{100} \right) \text{ Taka}$$

$$= 1320 \text{ Taka}$$

***Ans:*** 1320 Taka.

**b)** Given,

Cost price = 1200 Taka

Profit % = 15%

We know,

$$\text{Selling Price} = \left[ \frac{(100 + \text{Profit}\%)}{100} \times \text{Cost price} \right]$$

$$= \left[ \frac{(100 + 15)}{100} \times 1200 \right] \text{ Taka}$$

$$= \left( \frac{115 \times 1200}{100} \right) \text{ Taka}$$

$$= 1380 \text{ Taka}$$

$$\begin{aligned} \therefore \text{Selling price will be more} &= (1380 - 1320) \text{ Taka} \\ &= 60 \text{ Taka} \end{aligned}$$

**Ans:** 60 Taka.

### **Short Question Answer**

**1. A book is sold at 90 tk with the loss of 10 %. What is the cost price of the book?**

**Ans:** 100 tk.

#### **Rough**

Given,

$$\text{S.P.} = 90 \text{ tk}$$

$$\text{Loss\%} = 10\%$$

We know,

$$\text{C.P.} = \left[ \frac{100}{(100 - \text{Loss\%})} \times \text{S.P.} \right]$$

$$= \left[ \frac{100}{(100 - 10)} \times 90 \right] \text{ tk}$$

$$= \left( \frac{100 \times 90}{90} \right) \text{ tk}$$

$$= 100 \text{ tk}$$

**2. Convert 33% into decimal fraction.**

**Ans:** 0.33.

**Rough**

$$33\% = \frac{33}{100} = 0.33$$

**3. The cost of the book is 100 tk, what will the selling price be if it is sold at profit 8%?**

**Ans:** 108 tk.

**Rough**

Given,

$$\text{C.P.} = 100 \text{ tk}$$

$$\text{Profit\%} = 8\%$$

We know,

$$\text{S.P.} = \left[ \frac{(100 + \text{Profit\%})}{100} \times \text{C.P.} \right]$$

$$= \left[ \frac{(100 + 8)}{100} \times 100 \right] \text{ tk}$$

$$= \left( \frac{108 \times 100}{100} \right) \text{ tk}$$

$$= 108 \text{ tk}$$

**4. Convert  $\frac{3}{5}$  into percentage.**

**Ans:** 60%.

**Rough**

$$\frac{3}{5} = \frac{3 \times 20}{5 \times 20} = \frac{60}{100} = 60\%$$

**5. What is the basis of calculating profit and loss?**

**Ans:** Cost price.

**6. What is made if selling price is more than the cost price?**

**Ans:** Profit.

**7. What is made if cost price is more than the selling price?**

**Ans:** Loss.

**8. Write the formula to find annual interest.**

**Ans:** Annual interest =  $\frac{\text{Principal} \times \text{Rate of interest} \times \text{Time}}{100}$

**9. 1 Kg mango is brought for 100 tk and sold for 95 tk. What is the percentage of profit or loss?**

**Ans:** Loss 5%.

**Rough**

Given,

$$\text{C.P.} = 100 \text{ tk}$$

$$\text{S.P.} = 95 \text{ tk}$$

$$\text{Loss} = (100 - 95) \text{ tk}$$

$$= 5 \text{ tk}$$

We Know,

$$\text{Loss\%} = \frac{\text{Loss}}{\text{C.P.}} \times 100\%$$

$$= \frac{5}{100} \times 100\%$$

$$= 5\%$$

**10. The cost price of a book is tk 150 and the selling price is tk 180. What is the percentage of profit%?**

**Ans:** 20%.

**Rough**

Given,

$$\text{C.P.} = 150 \text{ tk}$$

$$\text{S.P.} = 180 \text{ tk}$$

$$\text{We Know, Profit\%} = \frac{\text{Profit}}{\text{C.P.}} \times 100\% = \frac{30}{150} \times 100\% = 20\%$$

**11. 15% of 300 Taka =?**

**Ans:** 45 tk.

**Rough**

$$\begin{aligned} &15\% \text{ of } 300 \\ &= \frac{15}{100} \times 300 \\ &= 45 \end{aligned}$$

**12. What does a profit of 5% imply?**

**Ans:** If cost price is 100 Taka, then selling price is (100+5), that is, 105 Taka.

**13. Profit or loss depends on what?**

**Ans:** Cost price.

**14. What is the invested money called?**

**Ans:** Principal.

**15. 56% of what gram is 42 grams?**

**Ans:** 75 grams.

**Rough**

$$\begin{aligned} &56\% \text{ of } \square = 42 \\ \Rightarrow &\frac{56}{100} \times \square = 42 \\ \Rightarrow &\square = \frac{42 \times 100}{56} \\ \Rightarrow &\square = 75 \end{aligned}$$



**16. Common fraction of 5% is what?**

**Ans:**  $\frac{1}{20}$

**Rough**

$$5\% = \frac{5}{100} = \frac{1}{20}$$

**17. How much is 4% of 75 Taka?**

**Ans:** 3 Taka.

**18. How many Kilograms are 20% of 120 Kilograms?**

**Ans:** 24 Kilograms.

**Rough**

$$\square = 20\% \text{ of } 120$$

$$\Rightarrow \square = \frac{20}{100} \times 120$$

$$\Rightarrow \square = 24$$

**19. How much is 30% of 50 grams?**

**Ans:** 15 grams.

**Rough**

30% of 50

$$= \frac{30}{100} \times 50$$

$$= 15$$

**20. Express 35% as a fraction.**

**Ans:**  $\frac{7}{20}$ .

**Rough**

$$35\% = \frac{35}{100} = \frac{7}{20}$$