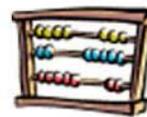


# Simple Interest ?



## Definition



- A common application of percents is simple interest.
- *Interest* - the amount of money charged for borrowing money, or the amount of money earned when saving or investing money.
- *Principal* - the amount borrowed or invested.
- *Simple Interest* - interest paid only on the principal.

### Simple Interest Paid Annually

$$I = Prt$$

Simple interest →  $I$     $=$     $P$     $r$     $t$  ← Time in years

Principal      Interest rate per year as a decimal

## *Formula:*

$$1. \text{ Interest} = \frac{\text{Principal} \times \text{Rate of Interest} \times \text{Time}}{100}$$

$$2. \text{ Principal} = \frac{\text{Interest} \times 100}{\text{Rate of Interest} \times \text{Time}}$$

$$3. \text{ Rate of interest} = \frac{\text{Interest} \times 100}{\text{Principal} \times \text{Time}}\%$$

$$4. \text{ Time} = \frac{\text{Interest} \times 100}{\text{Principal} \times \text{Rate of Interest}}$$

$$5. \text{ Amount} = \text{Principal} + \text{interest}$$

$$6. \text{ Principal} = \text{Amount} - \text{Interest}$$

$$7. \text{ Interest} = \text{Amount} - \text{Principal}.$$

## Word Problems

*1. Sohel Borrowed 800 Taka from a bank and paid back 856 Taka in one year time. What was the annual interest rate?*

*Solution:*

Given,

$$\text{Principal} = 800 \text{ tk}$$

$$\text{Amount} = 856 \text{ tk}$$

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

$$\text{Interest} = \text{Amount} - \text{Principal}$$

$$= (856 - 800) \text{ tk}$$

$$= 56 \text{ tk}$$

We know,

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

$$= \frac{56 \times 100}{800 \times 1}$$

$$= 7 \text{ tk}$$

**Ans:** 7 tk

*2. Amina borrowed some money from a bank with an annual interest rate of 5% and paid the annual interest 30 taka after 1 year. How much was the principal?*

*Solution:*

Given,

$$\text{Rate of interest} = 5\%$$

$$\text{Interest} = 30 \text{ Taka}$$

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

We know,

$$\begin{aligned}\text{Principal} &= \frac{\text{Interest} \times 100}{\text{Rate of Interest} \times \text{Time}} \\ &= \frac{30 \times 100}{5 \times 1} \\ &= 600 \text{ tk}\end{aligned}$$

**Ans:** 600 tk

**3. When we borrowed some money from a bank with an annual interest rate of 8%, we paid the annual interest 600 Taka one year later. How much was the principal?**

**Solution:**

Given,

Rate of interest = 8 %

Interest = 600 tk

Time = 1 year

We know,

$$\begin{aligned}\text{Principal} &= \frac{\text{Interest} \times 100}{\text{Rate of Interest} \times \text{Time}} \\ &= \frac{600 \times 100}{8 \times 1} \\ &= 7500 \text{ tk}\end{aligned}$$

**Ans:** 7500 tk

**4. If Jashim borrows 200 taka from a bank with an annual interest rate of 6%, how much money will he be paid bank in one year?**

**Solution:**

Given,

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

$$\text{Rate of interest} = 6 \%$$

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

We know,

$$\begin{aligned} \text{Interest} &= \frac{\text{Principal} \times \text{Rate of Interest} \times \text{Time}}{100} \\ &= \frac{2000 \times 6 \times 1}{100} \\ &= 120 \text{ tk.} \end{aligned}$$

$$\text{He'll pay back in 1 year} = (2000 + 120) \text{ tk}$$

$$= 2120 \text{ tk}$$

**Ans:** 2120 tk

**5. Puja borrowed some money from a bank with an annual interest of 12 % and paid the annual interest 1680 Taka one year later. How much was the principal?**

**Solution:**

Given,

$$\text{Rate of interest} = 12\%$$

$$\text{Interest} = 1680 \text{ tk}$$

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

We know,

$$\begin{aligned}\text{Principal} &= \frac{\text{Interest} \times 100}{\text{Rate of Interest} \times \text{Time}} \\ &= \frac{1680 \times 100}{12 \times 1} \text{ tk} \\ &= (140 \times 100) \text{ tk} \\ &= 14000 \text{ tk}\end{aligned}$$

**Ans:** 14000 tk

**6. Tanima borrowed 2000 Taka from a bank for 3 years and an annual interest of 6% is always charged on the principal. How much Taka will she pay back in 3 years' time?**

**Solution:**

Given,

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

$$\text{Time} = 3 \text{ years}$$

$$\text{Rate of interest} = 6\%$$

We know,

$$\begin{aligned}\text{Interest} &= \frac{\text{Principal} \times \text{Rate of Interest} \times \text{Time}}{100} \\ &= \frac{2000 \times 6 \times 3}{100} \text{ tk} \\ &= 360 \text{ tk}\end{aligned}$$

She will pay back in 3 years = Principal + Interest

$$= (2000 + 360) \text{ tk}$$

$$= 2360 \text{ tk}$$

**Ans:** 2360 tk

## Exercise (Do yourself):

1. Some money borrowed from a bank with an annual interest of 15% and paid the annual interest 1680 taka one year later. How much was the principal?
2. 15000 taka borrowed from a bank for 5 years with annual interest of 8%. How much taka should pay back 5 years later?
3. 50,000 taka was borrowed from a bank, and 98,000 taka was paid back 8 years later. How much annual interest rate was charged on the principal?