# Exercise 13.1

*Q 1. Find the simple interest , when :*

**SOLUTION :**

**(i) . Principal = Rs . 2000 , Rate of interest = 5% per annum , and Time = 5 years**

(i) . Principal (P) = Rs 2000

Rate of interest (R) = 5% p.a.

Time (T) = 5 years

Simple interest = $\left(\frac{P \times R \times T}{100}\right)$

= $\left(\frac{2000 \times 5 \times 5}{100}\right)$ =Rs 500

**(ii) . Principal = Rs . 500 , Rate of interest = 12.5% per annum , and Time = 4 years**

(ii) . Principal (P) = Rs 500

Rate of interest (R) = 12.5% p.a.

Time (T) = 4 years

Simple interest = $\left(\frac{P \times R \times T}{100}\right)$

= $\left(\frac{500 \times 12.5 \times 4}{100}\right)$ =Rs 250

**(iii) . Principal = Rs . 4500 , Rate of interest = 4% per annum , and Time = 6 months**

(iii) . Principal (P) = Rs 4500

Rate of interest (R) = 4% p.a.

Time (T) = 6 months

T = $\frac{6}{12} = \frac{1}{2}$ year (1 year = 12 months)

Simple interest = $\left(\frac{P \times R \times T}{100}\right)$

= $\left(\frac{4500 \times 4 \times \frac{1}{2}}{100}\right)$

=Rs 90

**(iv) . Principal =Rs . 12000 , Rate of interest = 18% per annum , and Time = 4 months**

(iv) . Principal (P) = Rs 12000

Rate of interest (R) = 18% p.a.

Time (T) = 4 months = $\frac{4}{12}$ = $\frac{1}{3}$ year

(1 year = 12 months)

Simple interest = $\left(\frac{P \times R \times T}{100}\right)$

= $\left(\frac{12000 \times 18 \times \frac{4}{12}}{100}\right)$ =Rs 720

**(v) . Principal = Rs . 1000 , Rate of interest = 10% per annum , and Time = 73 days**

(v) . Principal (P) = Rs 1000

Rate of interest (R) = 10% p.a.

Time (T) = 73 days = $\frac{73}{365}$ year (1 year = 365 days)

Simple interest = $\left(\frac{P \times R \times T}{100}\right)$

= $\left(\frac{1000 \times 10 \times \frac{1}{5}}{100}\right)$ =Rs 20

*Q 2 .Find the interest on Rs . 500 for a period of 4 years at the rate of 8% per annum . Also , find the amount to be paid at the end of the period .*

**SOLUTION :**

Principal amount (P) = Rs 500

Time period (T) = 4 years

Rate of interest (R) = 8% p.a.

Interest = $\left(\frac{P \times R \times T}{100}\right)$

= $\left(\frac{500 \times 8 \times 4}{100}\right)$ = Rs 160

Total amount paid = Principal amount + Interest = Rs 500 + 160 = Rs 660

*Q 3 . A sum of Rs . 400 is lent at the rate of 5% per annum . Find the interest at the end of 2 years .*

**SOLUTION :**

Principal amount (P) = Rs 400

Time period (T) = 2 years

Rate of interest (R) = 5% p.a.

Interest paid after 2 years = $\left(\frac{P \times R \times T}{100}\right)$

= $\left(\frac{400 \times 5 \times 2}{100}\right)$ = Rs 40

*Q 4 . A sum of Rs . 400 is lent for 3 years at the rate of 6% per annum . Find the interest .*

**SOLUTION :**

Principal amount (P) = Rs 400

Time period (T) = 3 years

Rate of interest (R) = 6% p.a.

Interest after 3 years = $\left(\frac{P \times R \times T}{100}\right)$

= $\left(\frac{400 \times 6 \times 3}{100}\right)$ = Rs 72

*Q 5 .A person deposits Rs . 25000 in a firm who pays an interest at the rate of 20 % per annum . Calculate the income he gets from it annually .*

**SOLUTION :**

Principal amount (P) = Rs 25000

Time period (T) = 1 year

Rate of interest (R) = 20% p.a.

Annual interest = $\left(\frac{P \times R \times T}{100}\right)$

= $\left(\frac{25000 \times 20 \times 1}{100}\right)$ = Rs 5000

*Q 6 . A man borrowed Rs . 8000 from a bank at 8% per annum . Find the amount he has to pay after* $4\frac{1}{2}$ *years .*

**SOLUTION :**

Principal amount (P) = Rs 8000

Time period (T) = $4\frac{1}{2}$ years = $\frac{9}{2}$ years

Rate of interest (R) = 8% p.a.

Interest = $\left(\frac{8000 \times 8 \times \frac{9}{2}}{100}\right)$

= 36 x 80 = Rs 2880

Total amount paid after $4\frac{1}{2}$ years = Principal amount + Interest = Rs 8000 + Rs 2880 = Rs 10880

**Q 7 . Rakesh lent out Rs . 8000 for 5 years at 15 % per annum and borrowed Rs . 6000 for 3 years at 12% per annum . How much did he gain or lose ?**

**SOLUTION :**

Principal amount lent out by Rakesh (P) = Rs 8000

Time period (T) = 5 years

Rate of interest (R) = 15% p.a.

Interest = $\left(\frac{P \times R \times T}{100}\right)$

= $\left(\frac{8000 \times 15 \times 5}{100}\right)$ = Rs 6000

Principal amount borrowed by Rakesh (P) = Rs 6000

Time period (T) = 3 years

Rate of interest (R) = 12% p.a.

Interest = $\left(\frac{P \times R \times T}{100}\right)$

= $\left(\frac{6000 \times 12 \times 3}{100}\right)$ = Rs 2160

Amount gained by Rakesh = Rs 6000 – Rs 2160 = Rs 3840

*Q 8 . Anita deposits Rs . 1000 in a savings bank account . The bank pays interest at the rate of 5 % per annum . What amount can Anita get after 1 year ?*

**SOLUTION :**

Principal amount (P) = Rs 1000

Time period (T) = 1 year

Rate of interest (R) = 5% p.a.

Interest = $\left(\frac{P \times R \times T}{100}\right)$

= $\left(\frac{1000 \times 5 \times 1}{100}\right)$ = Rs 50

Total amount paid after 1 year = Principal amount + Interest = Rs 1000 + Rs 50 = Rs 1050

*Q 9 . Nalini borrowed Rs . 550 from her friend at 8% per annum . She returned the amount after six months . How much did she pay ?*

**SOLUTION :**

Principal amount (P) = Rs 550

Time period (T) = 6 months = $\frac{1}{2}$ = $\frac{1}{2}$ year (1 year = 12 months)

Rate of interest (R) = 8% p.a.

Interest = $\left(\frac{P \times R \times T}{100}\right)$

= $\left(\frac{550 \times 8 \times \frac{1}{2}}{100}\right)$ = Rs 22

Total amount paid after 6 months = Principal amount + Interest = Rs 550 + Rs 22 = Rs 572

*Q 10 . Rohit borrowed Rs . 60000 from a bank at 9% per annum for 2 years . He lent this sum of money to Rohan at 10% per annum for 2 years . How much did Rohit earn from this transaction ?*

**SOLUTION :**

Principal amount lent out by Rohit (P) = Rs. 60000

Time period (T) = 2 years

Rate of interest (R) = 10% p.a.

Interest = $\left(\frac{P \times R \times T}{100}\right)$

= $\left(\frac{60000 \times 10 \times 2}{100}\right)$

= Rs. 12000

Principal amount borrowed by Rohit from the bank (P) = Rs. 60000

Time period (T) = 2 years

Rate of interest (R) = 9% p.a.

Interest = $\left(\frac{P \times R \times T}{100}\right)$

= $\left(\frac{60000 \times 9 \times 2}{100}\right)$

= Rs. 10800

Amount gained by Rohit = Rs. 12000 – 10800 = Rs. 1200

*Q 11 . Romesh borrowed Rs . 2000 at 2% per annum and Rs . 1000 at 5% per annum . He cleared his debt after 2 years by giving Rs . 2800 and a watch . What is the cost of watch ?*

**SOLUTION :**

Principal amount borrowed by Romesh (P) = Rs. 2000

Time period (T) = 2 years

Rate of interest (R) = 2% p.a.

Interest = $\left(\frac{P \times R \times T}{100}\right)$

= $\left(\frac{2000 \times 2 \times 2}{100}\right)$ = Rs.80

Principal amount borrowed by Romesh (P) = Rs. 1000

Time period (T) = 2 years

Rate of interest (R) = 5% p.a.

Interest = $\left(\frac{P \times R \times T}{100}\right)$

= $\left(\frac{1000 \times 5 \times 2}{100}\right)$

= Rs.100

Total amount that he will have to return = Rs. 2000 + 1000 + 80 + 100 = Rs. 3180

Amount repaid = Rs. 2800

Value of the watch = Rs. 3180 – 2800 = Rs. 380

*Q 12 . Mr.Garg lent Rs . 15000 to his friend . He charged 15% per annum on Rs. 12500 and 18% on the rest . How much interest does he earn in 3 years ?*

**SOLUTION :**

Principal amount (P) = Rs 12500

Time period (T) = 3 years

Rate of interest (R) = 15% p.a.

Interest = $\left(\frac{P \times R \times T}{100}\right)$

= $\left(\frac{12500 \times 15 \times 3}{100}\right)$ = Rs 5625

Rest of the amount lent = Rs 15000 – Rs 12500 = Rs 2500

Rate of interest = 18 % p.a.

Time period = 3 years

Interest = $\left(\frac{P \times R \times T}{100}\right)$

= $\left(\frac{2500 \times 18 \times 3}{100}\right)$ = Rs 1350

Total interest earned = Rs 5625 + Rs 1350 = Rs 6975

*Q 13 . Shikha deposited Rs . 2000 in a bank which pays 6% simple interest . She withdrew Rs . 700 at the end of first year .What will be her balance after 3 years ?*

**SOLUTION :**

Principal amount deposited (P) = Rs 2000

Time period (T) = 1 year

Rate of interest (R) = 6% p.a.

Interest after 1 year = $\left(\frac{P \times R \times T}{100}\right)$

= $\left(\frac{2000 \times 6 \times 1}{100}\right)$ = Rs 120

So amount after 1 year = Principal amount + Interest = 2000 + 120 = Rs 2120

After 1 year , amount withdrawn = Rs 700

Principal amount left (P1) = Rs 2120 – Rs 700 = Rs 1420

Time period (T) = 2 years

Rate of interest (R) = 6% p.a.

Interest after 2 years = $\left(\frac{P \times R \times T}{100}\right)$

= $\left(\frac{1420 \times 6 \times 2}{100}\right)$ = Rs 170.40

Total amount after 3 years = Rs 1420 + Rs 170.40 = Rs 1590.40

*Q 14 . Reema took a loan of Rs . 8000 from a money lender , who charged interest at the rate of 18% per annum . After 2 years , Reema paid him Rs . 10400 and wrist watch to clear the debt . What is the price of the watch ?*

**SOLUTION :**

Principal amount (P) = Rs 8,000

Rate of interest (R) = 18%

Time period (7) = 2 years

Interest after 2 years = $\left(\frac{P \times R \times T}{100}\right)$

= $\left(\frac{8000 \times 18 \times 2}{100}\right)$ = Rs 2,880

Total amount payable by Reema after 2 years = Rs 8,000 + Rs 2,880 = Rs 10,880

Amount paid = Rs 10,400

Value of the watch = Rs 10,880 – Rs 10,400 = Rs 480

*Q 15 . Mr . Sharma deposited Rs. 20000 as a fixed deposit in a bank at 10% per annum . If 30% is deducted as income tax on the interest earned , find his annual income .*

**SOLUTION :**

Amount deposit (P) = Rs 20,000

Rate of interest (R) = 10% p.a.

Time period (T) = 1 year

Interest after 1 year = $\left(\frac{P \times R \times T}{100}\right)$

= $\left(\frac{20000 \times 10 \times 1}{100}\right)$ = Rs 2,000

Amount deducted as income tax = 30% of Rs 2,000 = 30 x $\frac{2000}{100}$ = Rs 600

Annual interest after tax deduction = Rs 2,000 – Rs 600 = Rs 1,400