GIRLS' HIGH SCHOOL & COLLEGE, PRAYAGRAJ
WORKSHEET-7
SESSION:2020-2021
CLASS:7 (A,B,C,D,E&F)
SUBJECT-MATHS

Note- Parents please ensure that the student takes the reference of the chapter from the links mentioned below:
LINK-https://youtu.be/egQfJYDc0sc
CHAPTER-Simple Interest

INTRODUCTION TO SIMPLE INTEREST

Sometimes, we need a large amount of money for bigger purposes such as buying a house, buying a car, paying fee for higher education etc. If we do not readily have that much of money then we have to borrow it from money lenders, banks or co-operative credit societies for a particular period of time along with a condition of paying some extra money at a particular rate. This borrowed money is called **loan**.

For example, Jatin borrowed Rs.10000 from Shashank. He promised to give him back Rs.11000 after one year.

Here, Rs.10000 is loan taken by Jatin from Shashank.

Now, the question is that why did Jatin promise to pay more money than he borrowed?

Have you heard about interest? Let us suppose that someone borrows some money for a specific time period. Then, the borrower has to pay some extra money along with the original amount after the passage of that fixed time period. This extra money that is paid by the borrower is called **interest**.

In the given example, extra money paid = Rs.(11000 − 10000) = Rs.1000
Thus, here, he paid Rs.1000 as the interest for one year.
The original amount of money borrowed is called **principal**. In this case, Rs. 10000 is the principal.

The total amount that has to be paid back after the specific time period is called **amount**. In the above example, Rs.11000 is the amount.

Thus, we can conclude that

Amount = Principal + Interest

Interest = Amount − Principal

Principal = Amount − Interest

TERMS USED IN SIMPLE INTEREST

1. SIMPLE INTEREST: It is the extra money, which the lender gets from the borrower, in consideration of the sum (money borrowed) used by the borrower. The **simple interest (S.I)** and the **interest (I)** mean the same.
2. PRINCIPAL (P): It is the sum (money) which the lender gives to a borrower.
3. TIME PERIOD (T): It is the time for which the sum (principal) is borrowed or lent.
4. RATE OR RATE OF INTEREST (R): It is the interest for a fixed period on every Rs. 100.For example, Rate of interest is 18% per year means,on Rs.100 the interest in one year is Rs.18.
5. AMOUNT: It is the sum of the Principal and the Interest on it.
   Amount = Principal + Interest.

FORMULAE USED IN SIMPLE INTEREST

1. **Simple Interest :** $\frac{\text{Principal} \times \text{Rate} \times \text{Time}}{100}$

(*i*) or S.I. or Interest $= \frac{P \times R \times T}{100}$ where, P = Principal, R = Rate % and T = Time or period

(*ii*) $P = \frac{S.I. \times 100}{R \times T}$ (*iii*) $R = \frac{S.I. \times 100}{P \times T}$ and (*iv*) $T = \frac{S.I. \times 100}{P \times R}$

2. **Amount ;** Principal + S. Interest

i.e. $A = P + S.I.$ or $A = P + I = P + \frac{PRT}{100}$

SOLVED EXAMPLE 1 :

Find the simple interest and amount on Rs.8700 at the end of one year at the rate of 20% per year

Solution:

Principal (*P*) = Rs. 8700

Rate of interest (*R*) = 20%

Time period (*T*) = 1 year

$$\therefore I = \frac{P \times R \times T}{100} = \text{Rs}\ \frac{8700 \times 20 \times 1}{100} = \text{Rs}\ \frac{174000}{100} = \text{Rs}\ 1740$$

Therefore, interest (*I*) payable at the end of the year = Rs.1740

Now, amount (*A*) payable at the end of the year = *P* + *I*

= Rs.8700 + Rs.1740

= Rs. 10440

SOLVED EXAMPLE 2

Find the S.I and the amount on Rs.850 from 10th March to 3rd August at $2\frac{1}{2}\ \%\ p.a.$

Solution:

P = Rs. 850,

$R = 2\frac{1}{2}\% = \frac{5}{2}\%$ p.a.

T = 10th march to 3rd Aug.

March	= 21 days
April	= 30 days
May	= 31 days
June	= 30 days
July	= 31 days
Aug.	= 03 days
Total	146 days

$$= \frac{146}{365} = \frac{2}{5} \text{ years}$$

$$\therefore \text{S.I.} = \frac{\text{P.R.T.}}{100} = \frac{850 \times 5 \times 2}{100 \times 2 \times 5} = \frac{850}{100}$$

= Rs. 8·50

∴ Amount = P + S.I.

= Rs. 850 + Rs. 8·50 = Rs. 858·50

Solve the following:

1. **Find the S.I. and the amount on :**
   a. **Rs.150 for 4 years at 5% per year.**
   b. **Rs.600 from July 12 to Dec 5 at 10% p.a.**
   c. **Rs.350 for $3\frac{1}{2}$ years at 8% p.a.**
   d. **Rs.225 for 3 years 9 months at 16% p.a.**
   e. **Rs. 3,380 for 30 months at $4\frac{1}{2}\ \%\ p.a.$**

2. **Find the amount of a loan of Rs.3000 at 4% per year and for 5 years.**

SOLVED EXAMPLE 3:

Find the time in which Rs. 2,000 will amount to Rs. 2,330 at 11% p.a. ?

Solution:

Amount (A) = Rs. 2,330

Principal (P) = Rs. 2,000

$\therefore$ S.I. = A – P = Rs. 2,330 – Rs. 2,000

= Rs. 330

R = 11% p.a.

$$\therefore \text{Time} = \frac{\text{S.I.} \times 100}{\text{P} \times \text{R}} = \frac{330 \times 100}{2000 \times 11}$$

$$= \frac{3}{2} = 1\frac{1}{2} \text{ years}$$

Solve the following:

3. **On what sum of money (principal)does the S.I. for 10 years at 5% become Rs.1,600?**
4. **Find the rate percent, if the S.I on Rs.275 in 2 years is Rs.22.**
5. **What is the rate of interest, if Rs.3750 amounts to Rs.4650 in 4 years?**

6. **What sum will earn an interest of Rs.480 in 3 years, at 16% per year?**
7. **In what time will Rs.2100 fetch an interest of Rs. 525 at 5% p.a.?**
8. **How long will it take Rs.1500 to become Rs. 2040 at 8% per annumsimple interest?**
9. **A sum of Rs. 1780 becomes Rs. 2136 in 4 years, find the rate of interest.**

SOLVED EXAMPLE 4:

Find the sum which will amount to Rs. 700 in 5 years at 8% p.a.

Solution:

Amount = Rs.700, Rate(R)=8%p.a.,Time(T)=5 years

Let the principal (P) =Rs.100

Then, S.I = $\frac{P\times R\times T}{100} = \frac{100\times 8\times 5}{100} = Rs.40$,

Amount (A) = P +S.I = Rs(100+40)= Rs.140

If amount is Rs 140,then principal = Rs.100

And, if amount is Rs.700,then principal=$\frac{100\times 700}{140} = Rs.500$

Solve the following:

10. **What sum of money will amount to Rs. 992 at 4%p.a. in 6 years?**
11. **What sum will amount to Rs.1292 in 3 years at 12% per annum simple interest?**

SOLVED EXAMPLE 5:

In what time will a sum of money double itself at 8%p.a.?

Solution:

Let the principal (P) = Rs.100

Amount (A) =Rs.100 x 2= Rs.200

S.I.=A – P

=Rs.(200-100)=Rs.100

Rate(R) =8%

Time = $\frac{S.I \times 100}{P \times R}$

$= \frac{100 \times 100}{100 \times 8} = \frac{25}{2} = 12\frac{1}{2}$years

SOLVED EXAMPLE:6

What sum of money lent out at 5% for 3 years will produce the same interest as Rs. 900 lent out at 4% for 5 years ?

Solution:

In second case, Principal (P) = Rs. 900

Rate (R) = 4%, Time (T) = 5 years

$$\therefore \text{S.I.} = \frac{P \times R \times T}{100} = \frac{900 \times 4 \times 5}{100} = \text{Rs. } 180$$

In first case, S.I. = Rs. 180

Rate = 5%, Time = 3 years

$$\therefore \text{Sum} = \frac{\text{S.I.} \times 100}{R \times T} = \frac{180 \times 100}{5 \times 3} = \text{Rs. } 1200.$$

Solve the following:

12. In 4 years, Rs.6000 amounts to Rs.8000.In what time will Rs.525 amount to Rs.700 at the same rate?
13. A sum of money is lent for 5 years at R% simple interest per annum.If the interest earned be one- fourth of the money lent, find the value of R.
14. The simple interest earned on a certain sum in 5 years is 30% of the sum. Find the rate of interest.
15. What sum of money will amount to Rs.992 at 4% in 6 years?
16. A sum amounts to Rs.2652 in 6 years at 5% p.a. simple interest. Find :
    (a) the sum,
    (b) the time in which the same sum will double itself at the same rate of interest.
17. Surya deposited Rs. 25000 in the bank at the rate of 8% per annum. After how much time the money will get doubled?

END