Compound Interest
and
Simple Interest

Principal

The money borrowed or lent out for a certain period is called the principal or the sum.

Interest

Extra money paid for using other's money is called **interest.**

Simple Interest

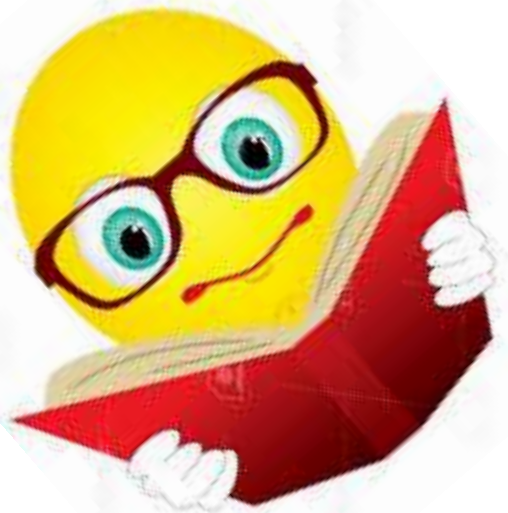
If the interest on a sum borrowed for certain period is reckoned uniformly, then it is called **simple interest.**

Let Principal = P, Rate = R% per annum (p.a.) and Time = T years. Then

Simple Interest =(P x R x T)/100

1. Reena took a loan of Rs. 1200 with simple interest for as many years as the rate of interest. If she paid Rs. 432 as interest at the end of the loan period, what was the rate of interest?

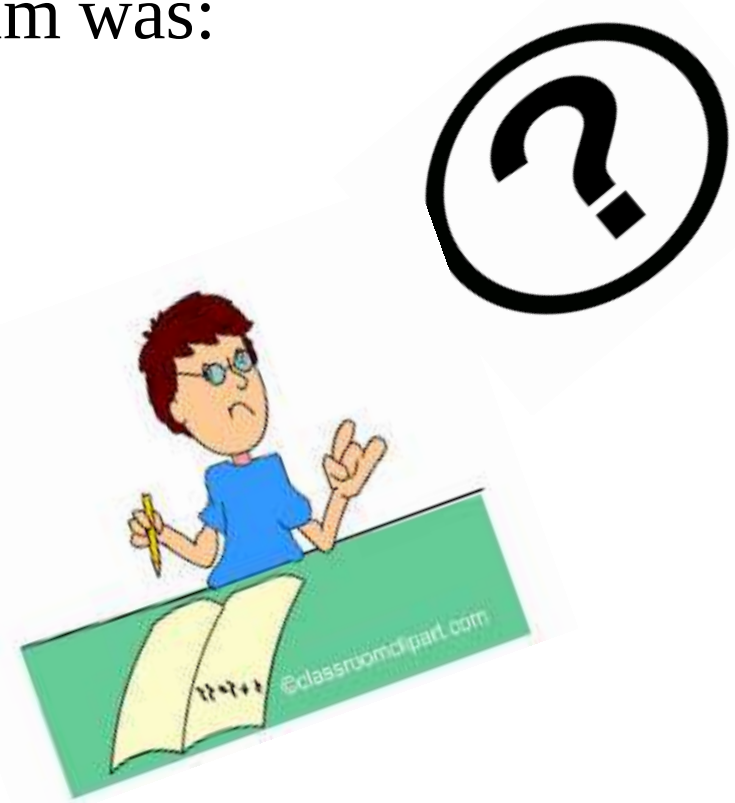
A. 3.6
B. 6
C. 18
D. Cannot be determined



- Ans:B

2. A man took loan from a bank at the rate of 12% p.a. simple interest. After 3 years he had to pay Rs. 5400 interest only for the period. The principal amount borrowed by him was:

a) 2000
b) 10000
c) 15000
d) 20000



- Ans: C

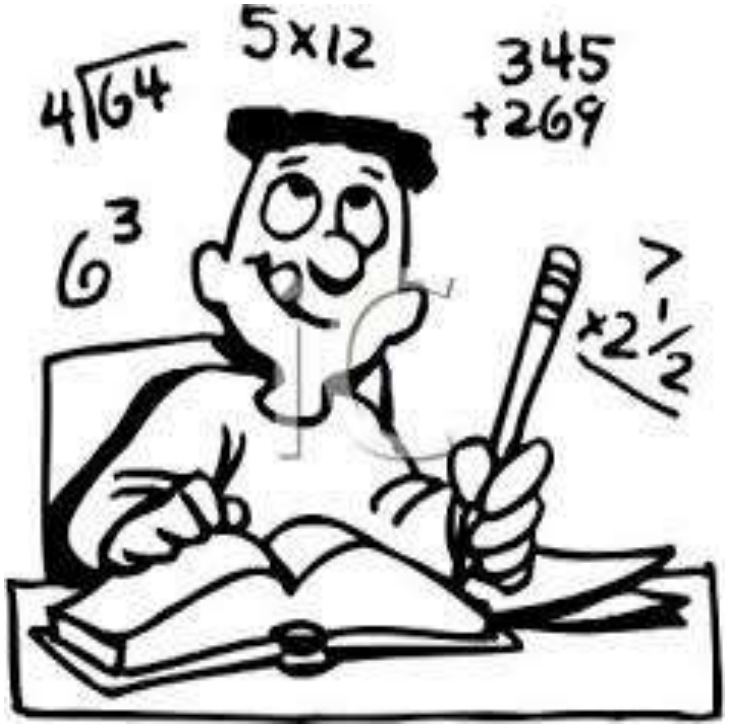
3. Priya borrowed some money at the rate of 6% per annum for the first 3yr, at the rate of 9% per annum for the next 5yr and at the rate of 13% per annum for the period beyond 8yr. If she pays a total interest of Rs. 8160 at the end of 11yr. how much money did she borrow?

a) 12000
b) 10000
c) 8000
d) None of these

- Ans: C

4. How much time will it take for an amount of Rs. 450 to yield Rs. 81 as interest at 4.5% per annum of simple interest?

a) 3.5 yrs
b) 4 yrs
c) 4.5 yrs
d) 5 yrs



- Ans: B

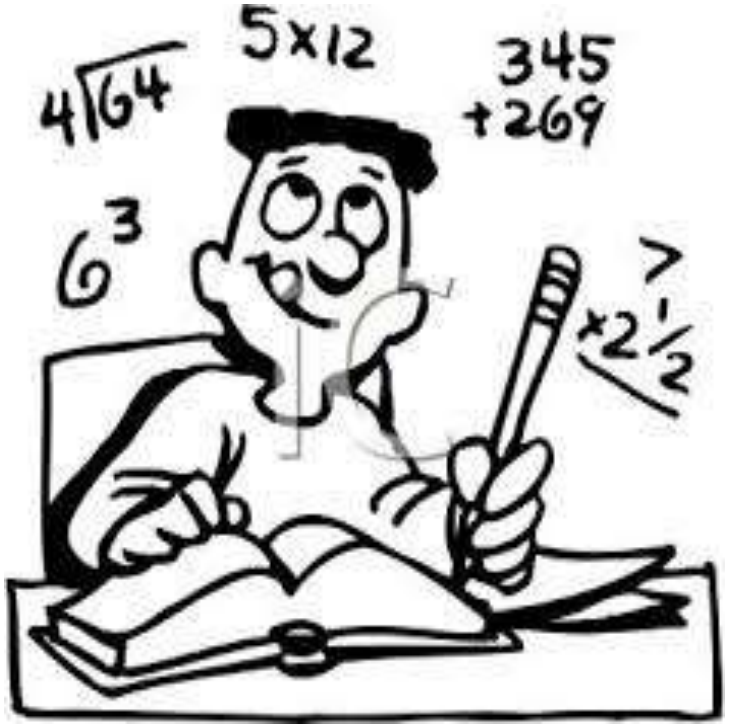
5. A sum of money invested for a certain number of years at 8% p.a. simple interest grows to Rs.180. The same sum of money invested for the same number of years at 4% p.a. simple interest grows to Rs.120 only. For how many years was the sum invested?

a) 25
b) 15
c) 20
d) 22

- Ans: A

6. If a sum of money at simple interest doubles in 6 years, it will become 4 times in:

A. 12 years
B. 14 years
C. 16 years
D. 18 years



- Ans: D

Compound Interest

Compound interest is the interest earned not only on the original principal, but also on all interests earned previously

Let Principal = P, Rate = R% per annum, Time = *n* years.

1. **When interest is compounded Annually:**

Amount=p(1+R/100)^n

2. When interest is compounded Half-yearly:

Amount=p[1+(R/2)/100]^2n

3. **When interest is compounded Quarterly:**

Amount=p[1+(R/4)/100]^4n

$$C.I - S.I \text{ for } 2 \text{ years} = P\left(\frac{R}{100}\right)^2$$

$$C.I - S.I \text{ for } 3 \text{ years} = P\left(\frac{R}{100}\right)^2\left(\frac{R}{100} + 3\right)$$

7. The compound interest on Rs. 30,000 at 7% per annum is Rs. 4347. The period (in years) is:

a) 2
b) 3
c) 4
d) 5

- Ans: A

8. If Rs. 500 amounts to Rs. 583.20 in two years compounded annually, find the rate of interest per annum?

a) 6%
b) 7%
c) 8%
d) 9%

- Ans: C

9 What will be the compound interest on a sum of Rs. 50,000 after 3 years at the rate of 10 % p.a.?

a) 15650
b) 16550
c) 16450
d) 15465

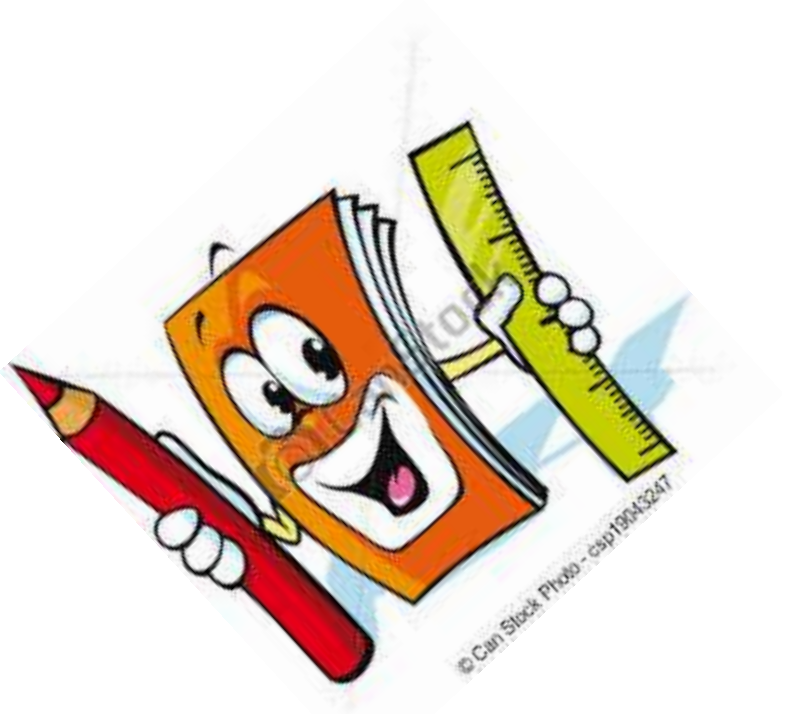
- Ans: B

10. The compound interest on a sum of money for 2 years is rs.832 and the simple interest on the same sum for the same period is rs.800. The difference between the compound interest and simple interest for 3 years is

a) 48
b) 66.56
c) 98.56
d) None

11. The population of a town was 3600 three years back. It is 4800 right now. What will be the population three years down the line, if the rate of growth of population has been constant over the years and has been compounding annually?

a) 6000
b) 6500
c) 6400
d) 6600



- **Ans:C**
- **Explanation:**
- The population grew from 3600 to 4800 in 3 years. That is a growth of 1200 on 3600 during three year span.
- Therefore, the rate of growth for three years has been constant.
- The rate of growth during the next three years will also be the same.
- Therefore, the population will grow by 4800 * 1/3 =1600
- Hence, the population three years from now will be 4800 + 1600 = 6400

12. A sum of rupees 10000 becomes 14400 compounded annually with rate of interest 20%. Find the number of years?

a) 1 yrs
b) 2 yrs
c) 3 yrs
d) 4 yrs

- Ans: B

13. A sum doubles in 8 years at simple interest. In how many years will the sum become 4 times the original sum?

(A) 16

(B) 24

(C) 64

(D) 32

14. A sum doubles in 8 years at compound interest. In how many years will the sum become 4 times the original sum if the interest is compounded annually?

(A) 16

(B) 24

(C) 64

(D) 32