SIMPLE INTEREST (Part 1)

Basic → Moderate → Advanced

Interest
- S.I
- C.I

$$S.I = \frac{Pnr}{100}$$

P → Principle

n → no. of years

r → rate of Interest

S.I → Simple Interest

$$A = P + I$$

Level 1: Basic

1. The simple interest (in ₹) on ₹5,000 at 5% per annum for 2 years is:

(a) ₹530
(b) ₹500 ✓
(c) ₹600
(d) ₹580

$S.I = \frac{P n r}{100}$

$= \frac{5000 \times 2 \times 5}{100}$

$= 500$

Shortcut

P - 5000

5% - 250

5% - 250
500

10% - 500
5% = 250

2. Nirmal invested ₹1,380 at 3% per annum simple interest in a bank. What amount (in ₹) will he get after 3 years?

(a) ₹1,504.2
(b) ₹124.2
(c) ₹1,404
(d) ₹224.2

$S.I = \frac{1380 \times 3 \times 3}{10}$

$= \frac{1242}{10}$

$S.I = 124.2$

$A = P + I$

$= 1380 + 124.2$

$= 1504.2$

3. Find the simple interest (in ₹) on ₹2,200 at the rate of 5% per annum in 2 years.

(a) ₹220
(b) ₹320
(c) ₹270
(d) ₹170

P – 2 200
5% – 110
5% – 110
220

220 / 2 = 110

22 × 5 = 110

4. Find the simple interest (in ₹) if a sum of ₹350 is borrowed for 1.5 years at 20% per annum rate of interest.

(a) ₹155
(b) ₹205
(c) ₹85
(d) ₹105 ✓

$S.I = \frac{350 \times 1.5 \times 20}{100}$

$= 35 \times 3$

$= 105$

Shortcut

350

20% – 70

10% – 35

105

1.5 ↓ 1yr + 6m

$\frac{x\%}{2} = \frac{20\%}{2}$

$x = 10\%$

5. Find the simple interest (in ₹) on ₹1,200 at an interest rate of 3% per month for 12 months.

(a) ₹36

(b) ₹56

(c) ₹432

(d) ₹72

P

R

n

$S.I = \frac{1200 \times 3 \times 12}{100}$

$= 144 \times 3$

$= 432$

3 % per annum → 12m → 1yr

$S.I = \frac{1200 \times 3 \times 1}{100}$

$= 36$

6. A man has invested ₹50,500 at a rate of 6% per annum simple interest for 2 years. Find the amount (in ₹) that he will receive after 2 years.

(a) ₹6,060
(b) ₹7,060
(c) ₹57,560
(d) ₹56,560

P

50500 - P

6% - 3030 } I

6% - 3030

56560

A = P + I

1% = 505

6% = 3030

7. At what rate (in percentage) per annum will ₹1,250 give ₹500 as simple interest in 10 years?

(a) 3%

(b) 6%

(c) 4%

(d) 7%

P I n

$S.I = \frac{1250 \times 10 \times r}{100}$

$\frac{500}{125} = r$

$4\% = r$

8. In what time (in years) will ₹2,800 fetch an interest of ₹700 at 5% per year simple interest?

(a) 7

(b) 6

(c) 5

(d) 8

$S.I = \frac{PnR}{100}$

$700 = \frac{2800 \times n \times 5}{100}$

$5 = n$

P A r n

9. What sum of money (in ₹) will amount to ₹2,400 at 4% per annum simple interest in 5 years?

(a) ₹12,000

(b) ₹2,050

(c) ₹2,000 ✓

(d) ₹1,950

$A = P + I$

$2400 - P = I$

$S.I = \frac{Pnr}{100}$

$2400 - P = \frac{P \times 5 \times 4}{100}$

$2400 = \frac{P}{5} + P$

$2400 = \frac{6P}{5}$

$2000 = P$

r %.

10. At what rate of interest (in percentage) per year will a sum of money double itself in 5 years on simple interest?

(a) 20%
(b) 22%
(c) 40%
(d) 18%

P $\xrightarrow{5y}$ 2P
(P) (A)

I = A − P
= 2P − P
I = P

S.I = $\frac{PNr}{100}$

P = $\frac{P \times 5 \times r}{100}$
20

20 % = r

Level 2: Moderate

11. How long (in years) will it take for ₹1,680 to become ₹2,100 at a rate of 4% per annum simple interest?

(a) 7.25
(b) 5.25
(c) 8.25
(d) 6.25 ✓

P A =

$I = 2100 - 1680 = 420$

$S.I = \frac{Pnr}{100}$

$420 = \frac{1680 \times n \times 4}{100}$

$\frac{525}{1050} = n$

$\frac{525}{42 \times 2} = n$

$6.2 = n$

$42 \overline{)262.5}$ → 6.2, 252, 105

12. A sum when invested at 12% simple interest per annum amounts to ₹8,500 after 3 years. The simple interest (in ₹) for the given time period is:

(a) ₹2,450
(b) ₹2,250
(c) ₹2,350
(d) ₹2,150

$I = 8500 - P$

$\frac{Pnr}{100} = 8500 - P$

$\frac{P \times 3 \times 12}{100} = 8500 - P$

$\frac{36P}{100} + P = 8500$

$\frac{136P}{100} = 8500$

$P = \frac{8500 \times 100}{136}$

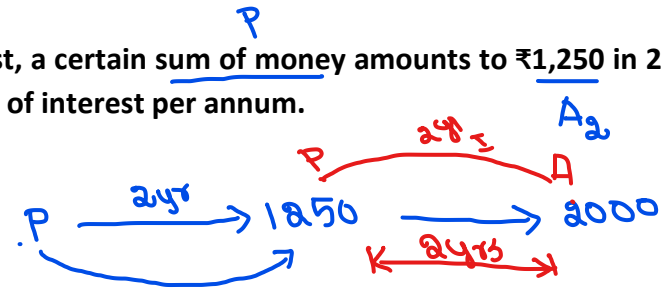
$= \frac{125 \times 100}{2}$

$P = 6250$

$I = 8500 - 6250 = 2250$

13. On simple interest, a certain sum of money amounts to ₹1,250 in 2 years and to ₹2,000 in 4 years. Find the rate of interest per annum.

(a) 75%
(b) 85%
(c) 70%
(d) 80%



$I = 375 \rightarrow I = 750$ (2yrs)

$A = 1250$

$P = 1250 - 750 = 500$

$S.I = \frac{P\,n\,r}{100}$

$750 = \frac{500 \times 2 \times r}{100}$

75% = r

2000 − 1250 = 750 → 2yrs (interest)

1 yr interest $= \frac{750}{2} = 375$

14. A sum, when invested at 20% simple interest per annum, amounts to ₹4,800 after 3 years. What is the simple interest (in ₹) on the same sum at the same rate in 1 year?

(a) ₹2,400

(b) ₹300

(c) ₹600

(d) ₹1,200

P → 4800

$I = 4800 - P$

$\frac{P \times 3 \times 20}{100} = 4800 - P$

$\frac{3P}{10} + P = 4800$

$\frac{16P}{10} = 4800$

$P = 3000$

S.I → 3000

20% - 600

S_R S_S

15. Rakesh invests a sum of ₹5,000 and Shivam invests a sum of ₹9,000 at the same rate of simple interest per annum. If, at the end of 3 years, Shivam gets ₹360 more interest than Rakesh, then find the rate of interest per annum.

(a) 3%
(b) 2%
(c) 1%
(d) 5%

$S_S = S_R + 360$

$\frac{9000 \times 3 \times r}{100} - \frac{5000 \times 3 \times r}{100} = 360$

$270r - 150r = 360$

$120r = 360$

$r = 3\%$

P

16. A sum increases by 75% in 10 years at a certain rate of simple interest per annum. By what percentage will the same sum increase in 6 years at the same rate of simple interest per annum?

(a) 42%
(b) 45%
(c) 38%
(d) 48%

P (100%) → 10yrs → A (175%)

75%

P (100%) → 6yrs →

$\frac{75}{100} = \frac{100}{100} \times 10 \times \frac{r}{100}$

$7.5\% = r$

$S.I = \frac{100}{100} \times 6 \times \frac{7.5}{100}$

$= \frac{45}{100}$

$= 45\%$

Shortcut:

10 yrs = 75%

1 yr : $\frac{75}{10} = 7.5\%$

6 yrs : $7.5\% \times 6$

$= 45.0$

$= 45\%$

17. If a sum invested at simple interest triples itself in 8 years, how many times of itself will it be in 12 years?

(a) 4 times
(b) 3.5 times
(c) 3 times
(d) 5 times

P → 8yr → 3P

P → 12yr → ? (4P)

$S.I = \frac{P \times 12 \times 25}{100}$

$S.I = 3P$

$A = P + 3P = 4P$

$P = \frac{P \times 8 \times r}{100}$

25% = r

18. Two banks, A and B, offered loans at 4.5% and 5.5% per annum, respectively. Ramesh borrowed an amount of ₹2,00,000 from each bank. Find the positive difference in the amounts of simple interest paid to the two banks by Ramesh after 2 years.

(a) ₹2,000

(b) ₹4,000

(c) ₹8,000

(d) ₹6,000

19. Ramesh Sharma borrows ₹8,000 for 3 years at 5% p.a. simple interest. He lends it to Manohar at 7% p.a. for 3 years. Find his gain.

(a) ₹580

(b) ₹480

(c) ₹450

(d) ₹460

20. A man invests money in three different schemes for 6 years, 10 years and 12 years, at 10%, 12% and 15% simple interest, respectively. If at the completion of each scheme, he gets the same interest, then the ratio of the respective investments is:

(a) 7 : 4 : 3

(b) 5 : 4 : 3

(c) 6 : 3 : 2

(d) 4 : 3 : 2