

Class7 Chapter Simple interest Test paper-1

1. In how much time will a sum become double of itself at 12.5% per annum simple interest?

Q. Let SI = 100 and P = 100, R = 12.5

$$SI = \frac{P \times R \times T}{100}$$

$$100 = \frac{100 \times 12.5 \times T}{100}$$

$$100 = 12.5 \times T$$

$$T = \frac{100}{12.5} = 8 \text{ years}$$

2. A sum of money become $\frac{8}{5}$ of itself in 5 years at a creation rate of simple interest. Find the rate per cent?

Q. Let P = x, A = $\frac{8x}{5}$, T = 5 years

$$SI = A - P$$

$$= \frac{8x}{5} - x = \frac{3x}{5}$$

$$R = \frac{SI \times 100}{P \times T} = \frac{\frac{3x}{5} \times 100}{x \times 5} = 12\%$$

3. Karim deposit a sum of Rs. 9000 in a bank after 2 year he withdraw Rs 4000 and at the end of he received Rs.7640. Find the rate

Q. P = 9000, 2 years = SI = $\frac{P \times R \times T}{100}$

$$SI = \frac{9000 \times 2 \times R}{100} = 180R$$

P = 9000 - 4000 = 5000, T = 5 - 2 = 3 years

$$SI = \frac{5000 \times R \times 3}{100} = 150R$$

$$A = P + SI$$

$$7640 = 5000 + 330R$$

$$2640 = 330R$$

$$8 = R$$

4. Divide Rs 3000 into two parts so that the simple interest on the first part for 4 years at 8% per annum is equal to the simple interest on the second part for 2 years at 9% per annum.

Q. Let 1st part = x and 2nd part = 3000 - x

$$SI = \frac{P \times R \times T}{100}$$

$$SI = \frac{x \times 8 \times 4}{100} = \frac{32x}{25}$$

$$SI = \frac{(3000 - x) \times 9 \times 2}{100}$$

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$$SI = \frac{(2000 - x) \times 9 \times 9}{100 \times 12} = \frac{(2000 - x) \times 3}{40}$$

$$SI = \frac{24000 - 9x}{40}$$

$$\frac{8x}{25} = \frac{24000 - 9x}{40}$$

$$400x = 25(2400 - 9x)$$

$$400x = 167500 - 225x$$

$$400x + 225x = 167500$$

$$625x = 167500$$

$$x = \frac{167500}{625} = 1080$$

1st part = 1080

$$2^{nd} \text{ part} = 3000 - 1080 = 1920$$

5. Divide Rs 6000 into two parts so that the simple interest on the first part for 9 months at 12% per annum is equal to the simple interest on the second part for $1\frac{1}{2}$ years at 10% per annum.

S. 1st part = x

2nd part = $6000 - x$

$P = x, T = 9 \text{ months} = \frac{9 \times 1}{12} = \frac{3}{4}$

$SI = \frac{P \times R \times T}{100}$

$$SI = \frac{x \times 12 \times \frac{3}{4}}{100}$$

$$SI = \frac{9x}{100}$$

$$SI = \frac{(6000 - x) \times 10 \times \frac{3}{2}}{100}$$

$$SI = \frac{(6000 - x) \times 3}{20}$$

$$SI = 18000 - 3x$$

$$\frac{9x}{100} = \frac{18000 - 3x}{20}$$

$$\frac{9x}{5} \times 20 = 18000 - 3x$$

$$9x = 90000 - 15x$$

$$9x + 15x = 90000$$

$$24x = 90000$$

$$x = \frac{90000}{24} = 3750$$

6. $x = 3750$

6. Divide 3600 into two parts such that if one part be lent at 9% per annum and other at 10% per annum. The total annual income is Rs 333.

6. 1st part = x

2nd part = $(3600 - x)$

$P = x$

$$SI = \frac{P \times R \times T}{100}$$

$$SI = \frac{x \times 9 \times 1}{100}$$

$$SI = \frac{9x}{100}$$

P of 2nd part = $3600 - x$

$$SI = \frac{P \times R \times T}{100}$$

$$SI = \frac{(3600 - x) \times 10 \times 1}{100}$$

$$SI = 3600 - x$$

$$\frac{3600 - x}{10} + \frac{9x}{100} = 333$$

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$$\frac{36000 - 10x + 9x}{100} = 333$$

$$\frac{36000 - x}{100} = 333$$

$$36000 - x = 333 \times 100$$

$$36000 - x = 33300$$

$$36000 = 33300 + x$$

$$36000 - 33300 = x$$

$$2700 = x \text{ Ans}$$

$$1^{\text{st}} \text{ part} = 2700$$

$$2^{\text{nd}} \text{ part} = 3600 - 2700$$

$$= 900 \text{ Ans}$$

7. Minakshi deposited a sum of Rs 8000 in a bank. After one year she withdraws Rs 2000. At the end of 3 yrs. She received Rs 7800. Find the rate?

$$P = 8000, T = 1 \text{ yr}, R$$

$$SI = \frac{P \times R \times T}{100}$$

$$SI = \frac{8000 \times R \times 1}{100}$$

$$SI = 80R$$

$$P = 8000 - 2000, T = 3 - 1 = 2 \text{ year}$$

$$SI = \frac{P \times R \times T}{100} = \frac{6000 \times R \times 2}{100}$$

$$= 120R$$

$$A = P + SI$$

$$A = 6000 + 80R + 120R$$

$$7800 = 6000 + 200R$$

$$7800 - 6000 = 200R$$

$$1800 = 200R$$

$$1800/200 = R$$

$$9 = R$$

Here, 9% per annum. Ans.

8. Had and Ajit borrowed Rs 8000 and Rs 6250 respectively at same rate of interest for 3 years. If Had paid an interest of Rs 735 more than Ajit. Find the rate?

$$P \text{ of Had} = 8000, T = 3 \text{ year}, R$$

$$SI = \frac{P \times R \times T}{100}$$

$$SI = \frac{8000 \times R \times 3}{100}$$

$$SI = 240R$$

$$P \text{ of Ajit} = 6250, T = 3 \text{ year}, R$$

$$SI = \frac{P \times R \times T}{100}$$

$$SI = \frac{6250 \times R \times 3}{100}$$

$$SI = 187.5R$$

$$\Rightarrow 240R - 187.5R = 735$$

$$52.5R = 735$$

$$105R = 1470$$

$$R = \frac{1470}{105}$$

$$R = 14\%$$

9. A merchant borrowed Rs 25000 from two money lenders. For one loan he paid 12% per annum simple interest and for the other he paid 14% per annum. The total interest paid by him in one year was Rs 3260. How much did he borrow at each rate?

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9. 1st part = x
2nd part = $(25000 - x)$
 $T = 3$ years, $R = 12\%$

$$SI = \frac{P \times R \times T}{100}$$

$$SI = \frac{x \times 12 \times 3}{100} = \frac{36x}{100}$$

$$SI = \frac{36x}{25}$$

$$SI = \frac{P \times R \times T}{100}$$

$$SI = \frac{(25000 - x) \times 12 \times 3}{100}$$

$$SI = \frac{175000 - 36x}{50}$$

$$\frac{36x}{25} + \frac{175000 - 36x}{50} = 3260$$

$$6x + 175000 - 72x = 3260 \times 50$$

$$-66x + 175000 = 163000$$

$$-66x + 175000 = 163000$$

$$-66x = 163000 - 175000$$

$$175000 - 163000 = 12000 = 66x$$

$$175000 - 168000 = 7000 = 20x$$

$$7000 = 20x$$

Hence, 1st part = 7000 ✓
2nd part = $25000 - 7000$
 $= 18000$ ✓

10. Kanti borrowed some money from bank at 8% per annum simple interest and lent the entire Amount to Satish on the same day at 12% per annum after 3 years, He gained Rs 420. Find the sum.

For Kanti: Let Principle = P , $R = 8\%$ Time = 3yrs

$$SI = \frac{PRT}{100} = \frac{P \times 8 \times 3}{100} = \frac{6P}{25}$$

For Satish: Let Principle = P , $R = 12\%$ Time =

$$3yrs \text{ Then, } SI = \frac{PRT}{100} = \frac{P \times 12 \times 3}{100} = \frac{9P}{25}$$

According to question Kanti gain Rs.420

$$\Rightarrow \text{Gain} = \frac{9P}{25} - \frac{6P}{25} = 420 \Rightarrow \frac{2P}{25} = 420$$

$$\Rightarrow P = \frac{420 \times 25}{2} = 5250$$

11. The interest on a sum of money at the end of 5 years is $\frac{3}{5}$ th of the sum. Find the rate of interest,

11. $P = x$, $T = 5$ years, $SI = \frac{3x}{5}$
 $R = \frac{SI \times 100}{P \times T}$
 $R = \frac{\frac{3x}{5} \times 100}{x \times 5}$
 $R = 12\% \text{ Ans.}$

12. A sum of money lent at simple interest amount to Rs. 3224 in 2 year and Rs, 4160 in 5 year. Find the sum and the rate of interest.

12. Amount for 5 year = 4160
Amount for 2 year = 3224
 $SI \text{ for } 3 \text{ year} = 4160 - 3224 = 936$
 $SI \text{ for } 1 \text{ year} = 936 / 3 = 312$
 $SI \text{ for } 2 \text{ year} = 312 \times 2 = 624$
Amount for 2 yr - SI for 2 year
 $3224 - 624$
Sum = 2600 ✓
Rate = $\frac{2600 \times 100 \times 24}{2600 \times 2} = 12\%$
 $R = 12\% \text{ P.O. Ans.}$

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13. Simple interest on a certain sum for 3 years at 8% per annum is Rs. 96 more than the SI on the same sum for 9% per annum. Find the sum.

$$13. P = x, R = 8\%, T = 3 \text{ yr}$$

$$SI = \frac{x \times 8 \times 3}{100} = \frac{24x}{100}$$

$$P = x, R = 9\%, T = 3 \text{ yr}$$

$$SI = \frac{x \times 9 \times 3}{100} = \frac{27x}{100}$$

Ans

$$\frac{27x}{100} - \frac{24x}{100} = 96$$

$$3x = 96$$

$$x = \frac{96 \times 100}{3}$$

$$x = 3200 \text{ Ans.}$$

15. x, y, z are three sums of money such that y is SI on x and z is the SI on y for same time and same rate. Find value of sum y [ans: $y = \sqrt{zx}$]

$$15. y \text{ on SI of } x = \frac{x \times R \times T}{100}$$

$$z \text{ on SI of } y = \frac{y \times R \times T}{100}$$

$$\frac{y}{z} = \frac{xRT}{100} \therefore \frac{yRT}{100}$$

$$\frac{y}{z} \times \frac{z}{y}$$

$$y^2 = xz \text{ Ans.}$$

14. At what rate per cent per annum will a sum double itself in 10 yrs?

Let P = RS. 100 then

Amount = double = RS. 200,

T = 10yrs;

SI = A - P = 200 - 100 = RS. 100

$$R\% = \frac{SI \times 100}{P \times T} = \frac{100 \times 100}{10 \times 100}$$

$$= 10\% \text{ p.a}$$