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# Simple Interest - 1

## Simple Interest

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

$$A = P + S.I$$

$S.I \rightarrow$  Simple Interest

$A \rightarrow$  Amount

$P \rightarrow$  Principal, Sum, Capital

$N \rightarrow$  No. of years

$R \rightarrow$  Rate of Interest

₹ 800 becomes ₹ 956 in 3 years at a certain rate of simple interest. If the rate of interest is increased by 4%, what amount will ₹ 800 become in 3 years?  
 (1) ₹ 1020.80 (2) ₹ 1025  
 (3) ₹ 1052 (4) ₹ 1050

800 → 956  
 3 years

156 → 3  
 $\frac{156}{3} = 52$

$$6.5 + 4 = 10.5$$

$$S.I = \frac{800 \times 3 \times 10.5}{100}$$

$$= \frac{12 \times 21}{2}$$

$$S.I = 252$$

$$S.I = \frac{P \times N \times R}{100} \Rightarrow 156 = \frac{800 \times 3 \times R}{100}$$

$$R = \frac{156 \times 100}{800 \times 3} = \frac{13}{2} = 6.5\%$$

$$A = P + S.I = 800 + 252 = 1052$$

In what time will ₹ 1,860 amount to 2,641.20 at simple interest 12% per annum?

(1) 3 years      (2) ~~3~~  $3\frac{1}{2}$  years

(3) 4 years      (4)  $4\frac{1}{2}$  years

$N = ?$

$R = 12\%$

$$\underline{1860} \rightarrow \underline{2641.2}$$

$$\begin{array}{r} 2641.2 \\ - 1860.0 \\ \hline 781.2 \end{array}$$

$$S.I = 781.2$$

$$781.2 = \frac{1860 \times N \times 12}{100}$$

$$7812 = 186 \times N \times 12$$

$$N = 3.5$$

$$N = \frac{7812}{186 \times 12}$$

~~186~~ ~~7812~~ ~~214~~  
~~186~~ ~~3.5~~

The sum lent at 5% per annum  
(i.e. 365 days) simple interest,  
that produces interest, of ₹ 2.00  
a day, is

- (1) ₹ 1,400      (2) ₹ 14,700  
~~(3) ₹ 14,600~~      (4) ₹ 7,300

$$P = ?$$

$$S.I = \underline{\underline{?}} \text{ per day}$$

$$R = 5\%$$

$$N = 1 \text{ year}$$

$$S.I \text{ for 1 year} = \frac{365 \times 2}{100} = 730$$

$$730 = P \times 1 \times \frac{5}{100} \Rightarrow P = \frac{20 \times 730}{100} = 14600$$

In what time will ₹ 8,000, at 3% per annum, produce the same interest as ₹ 6,000 does in 5 years at 4% simple interest?

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

- (1) 5 years    (2) 6 years
- (3) 3 years    (4) 4 years

$$S.I = \frac{8000 \times 3 \times N}{100} = \frac{6000 \times 4 \times 5}{100}$$

$$24N = 6 \times 20$$

$$N = 5$$

Alipta got some amount of money from her father. In how many years will the ratio of the money and the interest obtained from it be 10:3 at the rate of 6% simple interest per annum?

- (1) 7 years      (2) 3 years  
 (3) 5 years      (4) 4 years

$$\frac{P}{S.I} = \frac{10}{3}$$

$$30\% = \frac{3}{6} = 5$$

$$\frac{P}{S.I} = \frac{10}{3} \quad R=6\% \quad N=?$$

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

$$3K = \frac{14K \times N \times 6}{100}$$

$$N = 5 \text{ years}$$

The sum of money that will yield Rs. 60 as simple interest at the rate of 6% per annum in 5 years is

- (1) Rs. 200 (2) Rs. 225  
(3) Rs. 175 (4) Rs. 300

$$S.I = \frac{P \times N \times R}{100} \Rightarrow 60 = \frac{P \times 5 \times 6}{100}$$
$$P = 200$$

The simple interest on a certain sum of money at the rate of 5% per annum for 8 years is Rs. 840. Rate of interest for which the same amount of interest can be received on the same sum after 5 years is :

- (1) 7% per annum
- (2) 8% per annum ✓
- (3) 9% per annum
- (4) 10% per annum

$$S.I = 840 \quad R = 5\% \quad N = 8 \text{ years}$$

$$\cancel{210} = \frac{P \times R \times N}{100}$$

$$P = 2100$$

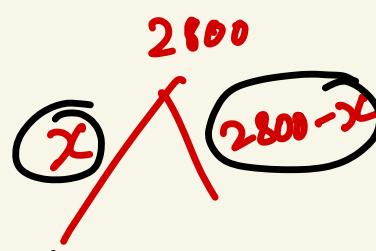
$$S.I = 840; P = 2100; N = 5$$

$$\cancel{840} = \frac{\cancel{2100} \times 5 \times R}{100}$$

$$R = 8\%$$

A sum of Rs. 2800 is divided into two parts in such a way that the interest on both the parts is equal. If the first part is lent at 9% p.a. for 5 years and second part is for 6 years at 10% p.a., find the two sums.

- (1) Rs. 1800, Rs. 1000
- (2) Rs. 1600, Rs. 1200
- (3) Rs. 1400, Rs. 1400
- (4) Rs. 1300, Rs. 1500



$$\frac{x \times 5 \times 9}{100} = \frac{(2800-x) \times 6 \times 10}{100}$$

$$\frac{3x}{5} = 6(2800-x)$$

$$3x = 4 \times 2800 - 4x$$

$$7x = 4 \times 2800 \Rightarrow x = 1600$$

The simple interest on a sum for 5 years is two-fifth of the sum.  
The rate of interest per annum is

- (1) 0.1      ~~(2)~~ 0.08  
(3) 0.06      (4) 0.04

$$S.I = \frac{2}{5} P.$$

$$\frac{2}{5} P = P \times 5 \times \frac{R}{100}$$

$$P = \frac{100 \times 2}{25} = \underline{8\cdot 1}$$

$$R = \frac{8}{100} = 0.08$$

How much simple interest will Rs.  
4000 earn in 18 months at 12%  
per annum?

- (1) Rs. 216    (2) Rs. 360  
~~(3)~~ Rs. 720    (4) Rs. 960

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

$$= \frac{4000 \times \cancel{\frac{18}{12}} \times \cancel{\frac{12}{100}}}{100}$$

$$S.I = 40 \times 18 = 720$$

For what sum will the simple interest at R% per annum for 2 years will be R ?

- (1) Rs.  $\frac{100}{2R}$  ~~(2)~~ Rs. 50  
(3) Rs.  $\frac{100}{R}$  (4) Rs.  $\frac{200}{R}$

$$S.I = R .$$

$$R = \frac{P \times 2 \times R}{100}$$

$$\boxed{P = 50}$$

Dalajit lent Rs. 10800 to Jaabir for 3 years and Rs. 7500 to Kabir for 2 years on simple interest at the same rate of interest and received Rs. 1422 in all from both of them as interest. The rate of interest per annum is

- (1) 3.5 per cent (2) 4 per cent  
~~(3)~~ 3 per cent (4) 4.5 per cent

2  
474  
3  
1422

$$\frac{10800 \times 3 \times R}{100} + \frac{7500 \times 2 \times R}{100} = 1422$$
$$324R + 150R = 1422 \rightarrow 474R = 1422 \rightarrow R = 3$$

324  
150  
474

What is the simple interest on Rs. 5400 in 5 years at the rate of 12% per annum?

- (1) Rs. 2700 (2) Rs. 2950
- (3) Rs. 3120 (4) Rs. 3240

$$\frac{5400 \times 5 \times 12}{100} = ?$$
$$\frac{254}{324}$$
$$60 \times 54 = \underline{\underline{3240}}$$

What is the simple interest on Rs. 7200 in 7 years at the rate of 14% per annum?

- (1) Rs. 6800 (2) Rs. 6812
- (3) Rs. 7056 (4) Rs. 7096

# Simple Interest - 2

A certain sum becomes Rs. 840 in 3 years and Rs. 1200 in 7 years at simple interest. What is the value (in Rs.) of the principal?

- (1) 520      (2) 570  
(3) 620      (4) 670

$$\begin{array}{l} \textcircled{840} \rightarrow 3 \text{ yrs} \\ \textcircled{1200} \rightarrow 7 \text{ yrs} \end{array}$$

$$\text{Amount} = P + S.I.$$

$$3 \times 90 = 270$$

$$840 = ? + 270$$

$$P = 840 - 270$$

$$\begin{array}{r} 1200 \\ 840 \\ \hline 360 \end{array} \rightarrow 4 \text{ yrs } 1 \text{ se}$$
$$\begin{array}{cccc} \textcircled{90} & \textcircled{90} & \textcircled{90} & \textcircled{90} \\ \hline \end{array}$$
$$\begin{array}{r} 840 \\ 270 \\ \hline 570 \end{array}$$

What is the simple interest (in Rs.) on a principal sum of Rs. 1440 for 3 years at the rate of 8% per annum?

$$\frac{24}{100} \times (1440)$$

- (1) 345.6      (2) 230.4  
(3) 367.8      (4) 312.2

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

$$= \frac{1440 \times 3 \times 8}{100} = \frac{144 \times 24}{10} = 345.6$$

In how much time (in years) will Rs. 7200 amount to Rs. 8928 at simple interest at the rate of 8% per annum?

- (1) 3 ✓      (2) 4  
(3) 2      (4) 6

P      A  
7200      8928

$$I = \frac{7200 \times N \times 8}{100}$$

$$N = \frac{216}{8 + 72} = 3.$$

$$\begin{array}{r} 8928 \\ 7200 \\ \hline 1728 \end{array}$$

Simple interest on a sum for eight months at 6% per annum is Rs 340. What is the value (in Rs.) of sum?

P = ?

- (1) ✓ 8500      (2) 9500  
(3) 8000      (4) 6800

$$340 = P \times \frac{8}{12} \times \frac{5}{100}$$

$$\begin{aligned}P &= 340 \times 25 \\&= \underline{\underline{8500}}\end{aligned}$$

1  
340  
340  
170  
850

The simple interest on a sum for six months at 5% per annum is Rs. 65.5. What is the value (in Rs.) of sum?

- (1) 2600       (2) 2620  
(3) 1320      (4) 2880

$$65.5 = P \times \frac{6}{12} \times \frac{5}{100}$$

$$P = 65.5 \times 40 = 2620.$$

$$\begin{array}{r} 2 \\ 655 \\ \hline 2620 \end{array}$$

A sum becomes Rs. 2286 in 3 years and Rs. 2448 in 4 years at simple interest. What is the rate (in percentage) of interest per annum?

- (1) 10      (2) 9  
(3) 8      (4) 11

2286 → 3

2448 → 4

$$\begin{array}{l} 1 \rightarrow 162 \\ 3 \rightarrow ? \\ \hline \end{array} \quad \left\{ \begin{array}{l} 162 \\ 3 \\ \hline 486 \end{array} \right.$$

$$\begin{array}{r} 2448 \\ 2286 \\ \hline 162 \end{array} \rightarrow \text{S.I for 1 year}$$

$$\begin{aligned} A &= P + S.I \\ 2286 &= P + 486 \end{aligned}$$

$$P = 1800$$

$$\begin{array}{r} 2286 \\ 486 \\ \hline 1800 \end{array}$$

$$P = 1800 \quad S \cdot J = 162 \quad N = 1$$

$$R = ?$$

$$162 = 1800 \times \frac{R}{100}$$

$$R = \frac{162}{18} = 9 \text{ %}$$

The simple interest on a sum of Rs. 6800 for 18 months is Rs. 2244. What is the rate (in per cent) of interest per annum?

- (1) 24              (2) 18  
(3) 20              (4) 22

$$2244 = \frac{6800 \times 18}{12} \times \frac{R}{100}$$

$$R = \frac{2244 \times 2}{68 \times 3}$$

$$R = 22\%$$

The simple interest on a sum is  $\frac{5}{9}$  th of the principal for 25 years.

What is the rate (in per cent) of interest per annum?

(1)  $\frac{25}{9}$

(2)  $\frac{9}{2}$

(3)  $\frac{20}{9}$

(4)  $\frac{15}{4}$

$$S.I = \frac{5}{9}P$$

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

$$\frac{5}{9}P = \frac{P \times 25 \times R}{100}$$

$$P = \frac{\frac{20}{9}P}{\frac{25R}{100}} = \frac{20}{9}f.$$

The simple interest on a sum is

$\frac{3}{5}$  th of the principal at the rate of 7.5% per annum. What is the time period (in years)?

- (1) 7.5      (2) 8  
(3) 10      (4) 12.5

$$S.I = \frac{3}{5} P$$

$$\frac{3}{5} P = \frac{P \times N \times 7.5}{100}$$

$$N = \frac{3 \times 100}{7.5 \times 5}$$

$$N = \frac{100 \times 2}{25} = 8$$

In how many years will a certain sum be thrice of itself at the rate of 5% per annum simple interest?

- (1) 30 years    ~~(2)~~ 40 years  
(3) 25 years    (4) 20 years

Amount =  $3P$

$$A = P + S.I$$

$$3P = P + S.I$$

$$S.I = 2P$$

$$2P = P \times N \times \frac{5}{100}$$

$$N = \frac{200}{5} : 40 \text{ years.}$$

A lent Rs. 6500 to B for 2 years and Rs. 8000 to C for 4 years at the same rate of simple interest and earned Rs. 4500 as interest from both amounts. The rate of interest per annum is

- (1) 8%                      (2) 5%  
~~(3)~~ 10%                      (4) 7%

$$\frac{6500 \times 2 \times R}{100} + \frac{8000 \times 4 \times R}{100} = 4500$$

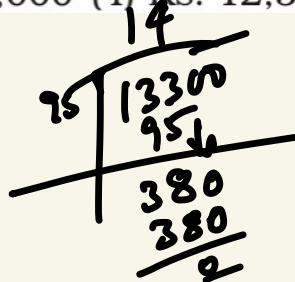
$$130R + 320R = 4500$$

$$450R = 4500$$

$$R = 10 - 1.$$

Raman paid a sum of Rs. 13300 as interest after 9 years. He had borrowed a certain sum at the rate of 6% p.a. for the first two years, at 9% p.a. for the next three years and at 14% p.a. for the remaining period. What was the borrowed sum ?

- (~~1~~) Rs. 14,000 (2) Rs. 12,000  
 (3) Rs. 10,000 (4) Rs. 12,500



$$\underline{6 \times 2 + 9 \times 3 + 14 \times 4}$$

$$12 + 27 + 56 = 95\text{--}$$

$$13300 \rightarrow S.I = 95\text{--} \\ \text{of P.}$$

$$\cancel{95} \rightarrow \underline{13300}$$

$$\cancel{100} \rightarrow ?$$

$$\textcircled{14000}$$

The simple interest on a sum for a certain number of years, same as the rate percentage of the interest, is equal to the sum itself. The number of years is equal to :

- (1) 5                  ~~(2) 10~~  
(3) 8                  (4) 1

$$N = R$$

$$S \cdot I = P$$

$$S \cdot I = \frac{P \times N \times R}{100}$$

$$P = \frac{P \times N \times N}{100} \Rightarrow N^2 = 100$$

$$N = 10$$

A sum of Rs. 1500 is invested at simple interest for  $x$  months. If

the rate of interest is  $\frac{x}{8}\%$  per annum, then the sum grows to Rs. 1590. What is the value of  $x$ ?

- (1) 3.2                  (2) 2.4  
(4) 32                  (4) 24

$$A = 1590$$

$$P = 1500$$

$$N = x \text{ months}$$

$$R = \frac{x}{8} \cdot \%$$

$$SI = 1590 - 1500 = 90$$

$$90 = \frac{1500 \times \frac{x}{12} \times \frac{x}{8}}{100}$$

$$x^2 = 12 \times 12 \times 4$$
$$x = 12 \times 2 = 24$$

$$x^2 = \frac{90 \times 12 \times 8}{15} = \frac{6 \times 12 \times 2 \times 4}{5} = 12 \times 12 \times 6$$

# Simple Interest - 3

A certain amount (in Rs.) is invested at the rate of  $x\%$  per annum simple interest for 5 years. If it were invested at the rate of  $(x+5)\%$  per annum simple interest, it would fetch Rs. 9200 more as interest. What was the principal?

- (1) Rs. 35,800
- (2) Rs. 36,800 ✓
- (3) Rs. 36,400
- (4) Rs. 40,000

25%.

$x \rightarrow \underline{x+5}$

5 yrs      25%.

~~25%.~~ → 9200

~~100%.~~ → ?  
4

$$4 \times 9200 = 36800$$

Rs. 4,300 becomes Rs. 4,644 in 2 years at simple interest at a certain rate percent. Find the principal amount that will become Rs. 10,104 in 5 years at the same rate of interest.

- (1) Rs. 5,710
- (2) Rs. 7,200
- (3) Rs. 8,420
- (4) Rs. 9,260

$$\frac{4300}{2 \text{ yrs}} = \frac{4644}{344}$$

$$344 = \frac{4300 \times 2 \times R}{100}$$

$$R = \frac{172}{43 \times 2} = 4\%.$$

$$\boxed{A = 10104}$$

$$N = 5 \text{ yrs}$$

$$P = ?$$

$$R = 4\%$$

$$5 \cdot ? = \frac{20 \cdot 1}{100} \rightarrow ?$$

$$10104 = P + \frac{P \times 5\%}{100}$$

$$\cancel{10104} = \frac{6P}{5}$$

$$\begin{array}{r} 342 \\ 1684 \\ \hline 8420 \end{array}$$

$$P = 5 \times 1684$$

$$P = 8420$$



A sum amounts to double in 8 years by simple interest. Then the rate of simple interest per annum is

- (1) 10%      (2) 12.5%  
(3) 15%      (4) 20%

$$A = 2P$$

$$S.I = P$$

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

$$P = \frac{A \times 100}{N \times R}$$

$$R = 12.5\%$$

The rate of simple interest for which a sum of money becomes 5 times of itself in 8 years is :

- (1) 30%      (2) 40%  
~~(3)~~ 50%      (4) 55%

$$A = Sp$$

$$S.I = 4P$$

$$N = 8$$

$$S.I = \frac{P \times N \times R}{100} \Rightarrow 4P = P \times \frac{8 \times R}{100}$$

$$\boxed{R = 50\%}$$

If a sum of money doubles itself in 8 years, then the interest rate in percentage is

- (1)  $8\frac{1}{2}\%$
- (2) 10%
- (3)  $10\frac{1}{2}\%$
- (4)  ~~$12\frac{1}{2}\%$~~

The simple interest on a sum of money for 10 years is Rs. 3130. If the principal becomes 5 times after 5 years, what will be the total interest (in Rs.) obtained after 10 years?

- (1) 6260      (2) 7825  
 (3) 9390 ✓      (4) 15650

$$3130 = P \times 10 \times \frac{R}{100} \quad \text{--- (1)}$$

$$\text{For 5 yrs } S.I. = \frac{3130}{2}$$

$$= \underline{\underline{1565}}$$

$$S.I. = 5P \times 5 \times \frac{R}{100}$$

$$= \frac{PR}{4} = \frac{31300}{4} = 7825$$

$$\frac{1565}{7825}$$

$$\underline{\underline{9390}}$$

$$PR = \underline{\underline{31300}}$$

$5 \rightarrow 1565$

$S.I \rightarrow \underline{5 \times 1565}$  for the next 5 years

~~$\frac{232}{1565} \times 5$~~   
 $\underline{\underline{7825}}$

~~$\frac{7825}{1565}$~~   
 $\underline{\underline{9390}}$

A sum of Rs. 400 becomes Rs 448 at simple interest in 2 years.  
In how many years will the sum of Rs. 550 amounts to Rs. 682 at the same rate?

- (1) 2                    (2) 3  
(3) 3.5                ~~(4) 4~~

$$48 = \frac{400 \times 2 \times R}{100}$$

$$R = 6\frac{1}{2}$$

$$132 = \frac{550 \times 6 \times N}{100}$$

$$\frac{682}{550} = \frac{132}{100}$$

$$N = \frac{132}{33} = 4 \text{ years}$$

What is the rate (in per cent) of simple interest at which a sum of money becomes three times of itself in 50 years?

- (1) 2              ~~(2) 4~~  
(3) 5              (4) 8

$$A = 3P$$
$$S.I = 2P$$

$$2P = P \times 50 \times \frac{R}{100}$$

$$\boxed{R = 4\%}$$

A certain sum was invested on simple interest. The amount to which it had grown in five years

was  $1\frac{1}{4}$  times the amount to

which it has grown in three years.  
The percentage rate of interest  
was :

- (1) 10%                  (2) 20%  
(3) 25%                  (4) 15%

$$A_5 = 1\frac{1}{4} A_3$$

$$\frac{A_5}{A_3} = \frac{5}{4}$$

$$\frac{P + \frac{Px5xR}{100}}{P + \frac{Px3xR}{100}} = \frac{5}{4}$$

$$\frac{\cancel{P} \left[ 1 + \frac{5R}{100} \right]}{\cancel{P} \left[ 1 + \frac{3R}{100} \right]} = \frac{5}{4} \Rightarrow 4 + \frac{5R}{100} \times 4 = 5 + \frac{5x3R}{100}$$

$$4 + \frac{R}{5} = 5 + \frac{3R}{20}$$

$$\frac{R}{5} - \frac{3R}{20} = 1$$

$$\frac{4R}{20} - \frac{3R}{20} \rightarrow \frac{R}{20} = 1 \Rightarrow R = 20 \text{ l.}$$

On a certain sum, the simple interest at the end of  $6\frac{1}{4}$  years

$$S.I = \frac{3}{8} P$$

$$\frac{3}{8} P = P \times 6\frac{1}{4} \times \frac{R}{100}$$

$$\frac{3}{8} = \frac{25}{9} \times \frac{R}{4}$$

$$R = \frac{16 \times 3}{8} = 6\frac{1}{4}$$

becomes  $\frac{3}{8}$  of the sum. The rate of interest is

- (1) 5%      ~~(2) 6%~~  
(3) 7%      (4) 8%

A and B borrowed Rs. 3000 and  
Rs. 3200 respectively at the same

rate of interest for  $2\frac{1}{2}$  years. If

B paid Rs. 40 more interest than  
A, find the rate of interest.

- (1) 5%                      (2) 7%  
(3) 8%                      (4) 6%

S.I

S.I

$$\frac{3200 \times 2.5 \times R}{100} - \frac{3000 \times 2.5 \times R}{100} = 40$$

$$\frac{16}{2} \times \frac{5}{2} \times R - \frac{15}{2} \times \frac{5}{2} \times R = 40$$

$$80R - 75R = 40$$

$$5R = 40$$

$$R = 8\text{--}\text{I.}$$

A person invested a sum of Rs. 18,600 at  $x\%$  per annum and another sum that is twice the former at  $(x + 2)\%$  per annum, both at simple interest. If the total interest earned on both investments

for  $3\frac{1}{2}$  years is Rs. 23,110.50.

then the rate of interest per annum, on the second investment is:

- (1) 11%              (2) 10.5%
- (3) 13%              (4) 12.5% ✓

$$\frac{18600 \times x \times 3.5}{100} + \frac{2 \times 18600 \times (x+2) \times 3.5}{100} = 23110.5$$

$$186 \times \underline{3.5} (3x+4) = \frac{23110.5}{6603}$$

$$186 \times \cancel{\frac{1}{2}} (3x+4) = \frac{46221}{2}$$

$$3x+4 = \frac{6603}{156} \quad \frac{2201}{62}$$

$$3x + 4 = \frac{220}{62}$$

$$3x + 4 = 35.5$$

$$3x = 31.5$$

$$x = 10.5$$

$$x + 2 = 12.5 - 1$$

$$\begin{array}{r} 35.5 \\ 62 \overline{)2201} \\ 186 \downarrow \\ 341 \\ 360 \hline 310 \\ 310 \hline 0 \end{array}$$

$$3x+9=$$

# Simple Interest - 4

Simple interest on a certain sum at a certain annual rate of interest is  $\frac{16}{25}$  of the sum. If the

number representing rate per cent and time in years be equal, then the rate of interest is

(1) 8%

(2)  $11\frac{1}{2}\%$

(3)  $12\frac{1}{2}\%$

(4)  $12\frac{1}{4}\%$

$$N = R$$

$$S.I = \frac{16}{25} P$$

$$S.I : \frac{P \times N \times R}{100}$$

$$\frac{16}{25} P = \frac{1 \times R \times P}{100}$$

$$R^2 = \frac{16 \times 100}{25} \Rightarrow R = \frac{4 \times 10}{5}$$
$$R = 8\cdot 1\cdot$$

A person deposited ₹ 500 for 4 years and ₹ 600 for 3 years at the same rate of simple interest in a bank. Altogether he received ₹ 190 as interest. The rate of simple interest per annum was

- (1) 4%                  (2) 5%  
(3) 2%                  (4) 3%

$$\frac{500 \times 4 \times R}{100} + \frac{600 \times 3 \times R}{100} = 190$$

$$20R + 18R = 190$$

$$38R = 190$$

$$R = \frac{190}{38} = 5\%$$

The simple interest on ₹ 4,000 in 3 years at the rate of  $x\%$  per annum equals the simple interest on ₹ 5,000 at the rate of 12% per annum in 2 years. The value of  $x$  is

- (1) 10%                          (2) 6%  
(3) 8%                            (4) 9%

$$\frac{4000 \times 3 \times x}{100} = \frac{5000 \times 12 \times 2}{100}$$
$$12x = 60 \rightarrow \boxed{x=10}$$

If  $x, y, z$  are three sum of money such that  $y$  is the simple interest on  $x$  and  $z$  is the simple interest on  $y$  for the same time and at the same rate of interest, then we have

- (1)  $z^2 = xy$       (2)  $xyz = 1$   
 (3)  $x^2 = yz$       (4)  $y^2 = zx$

$$y = \frac{NxR}{100} \quad \text{--- (1)}$$

$$z = \frac{NyR}{100} \quad \text{--- (2)}$$

$$\frac{NR}{100} = \frac{y}{x}$$

$$\frac{NR}{100} = \frac{z}{y}$$

$$\frac{y}{x} = \frac{z}{y} \Rightarrow \boxed{y^2 = xz}$$

A borrows a sum of Rs. 1,000 from his friend B on 31 December 2015 on the condition that he will return the same after one year with simple interest at 12%. However, A gets into a position of returning the money on 1 may 2016. How much amount he has to return to B?

- (1) Rs. 1,331.5
- (2) Rs. 1,045
- (3) Rs. 1,120
- (4) Rs. 1,040 ✓

$$P = \text{Rs. } 1000 \quad R = 12\% \\ N = 4 \text{ months}$$

$$S.I. = 1000 \times \frac{4}{12} \times \frac{12}{100} \\ S.I. = 40 \\ A = 1000 + 40 = 1040.$$

A borrows a sum of Rs. 2,000 from his friend B on 31 December 2011 on the condition that he will return the same after one year with simple interest at 8% per annum. However, A gets into a position of returning the money on 1 July 2012. How much amount he has to return to B?

- (1) Rs. 2,200    (2) ~~Rs. 2,080~~  
(3) Rs. 2,088    (4) Rs. 2,070

$$P = 2000$$

$$R = 8\%$$

N = 6 months.

$$S.I = \frac{2000 \times 8 \times \frac{6}{12}}{100}$$

$$S.I = 80$$

$$A = 2000 + 80 = \underline{\underline{2080}}$$

₹12,000 is divided into two parts so that the simple interest on the first part for 3 years at 12% per annum may be equal to the simple interest on the second part

12000

for  $\frac{1}{2}$  years at 16% per annum.

The ratio of the first part to the second part is

- (1) 2 : 1
- (2) 1 : 2
- (3) 2 : 3
- (4) 3 : 2

$$\frac{x \times 3 \times 12}{100} = \frac{y \times 4.5 \times 16}{100}$$

$$36x = 72y$$

$$\frac{x}{y} = \frac{2}{1}$$

A person invested a total sum of Rs. 7900 in three different schemes of simple interest at 3%, 5% and 8% per annum. At the end of one year he got same interest in all three schemes. What is the money (in Rs.) invested at 3%?

- (1) 2900      (2) 3500  
~~(3)~~ 4000      (4) 5600

7900

$$x+y+z = 7900$$

$$\frac{xy \times 3 \times 1}{100} = \frac{yx \times 5 \times 1}{100} = \frac{zx \times 8 \times 1}{100}$$

$$3x = 5y = 8z$$

$$x : y : z$$

$$40 : 24 : 15$$

$$x = 40k; y = 24k; z = 15k$$

$$40k + 24k + 15k = 7900 \Rightarrow 79k = 7900$$

$$k = 100$$

$$40 \times 100 = \underline{\underline{4000}}$$

A person invests ₹12,000 as fixed deposit at a bank at the rate of 10% per annum simple interest. But due to some pressing needs he has to withdraw the entire money after 3 years, for which the bank allowed him a lower rate of interest. If he gets ₹3,320 less than what he would have got at the end of 5 years, the rate of interest allowed by the bank is

- (1)  $7\frac{5}{9}\%$
- (2)  ~~$7\frac{4}{9}\%$~~
- (3)  $7\frac{8}{9}\%$
- (4)  $8\frac{7}{9}\%$

$$\frac{12000 \times 10 \times 5}{100} = \underline{\underline{6000}}$$

$$\begin{array}{r} \underline{\underline{6000}} \\ \underline{\underline{3320}} \\ \hline \underline{\underline{2680}} \end{array} \rightarrow \text{He got}$$

$$\frac{12000 \times 3 \times R}{100} = 2680$$

$$R = \frac{2680}{360} = \frac{268}{36} \frac{67}{9}$$

$$R = 7\frac{4}{9}\%$$

A certain scheme of investment in simple interest declares that it trebles the investment in 8 years. If you want to quadruple your money through that scheme, you have to invest it for :

- (1) 11 years 6 months
- (2) 10 years 8 months
- (3) 10 years      (4) 12 years

$$A = 3P ; S.I = 2P$$

$$2P = \frac{P \times 8 \times R}{100}$$

$$R = \frac{25 \cdot I}{N}$$

$$A = 4P ; S.I = 3P$$

$$3P = \frac{P \times N \times 25}{100}$$

$$N = 12 \text{ years}$$

$$A = P + S.I$$

$$4P = P + S.I$$

$$\boxed{S.I = 3P}$$

# Simple Interest - 5

Nitin borrowed some money at the rate of 6% p.a. for the first three years, 9% p.a. for the next five years and 13% p.a. for the period beyond eight years. If the total interest paid by him at the end of eleven years is ₹ 8,160, the money borrowed by him (in ₹) was

- (1) 12,000      (2) 6,000  
~~(3) 8,000~~      (4) 10,000

$$P = ?$$

$$6 \times 3 + 9 \times 5 + 13 \times 3$$

$$18 + 45 + 39 = \underline{102 \text{ } \cdot \text{ } \cdot}$$

$$\cancel{102 \cdot \cdot} \rightarrow \underline{\underline{80}}$$

$$\cancel{100 \cdot \cdot} \rightarrow ?$$

$$P = \text{Rs. } 8000/-$$

$$\begin{array}{r} 80 \\ 80 \\ \hline 160 \end{array}$$

$$\begin{array}{r} 800 \\ 160 \\ \hline 8160 \end{array}$$

Mohan lends Rs. 500 to John and a certain sum to Tom at the same time at a simple interest of 8% per annum. If in 4 years, he altogether receives Rs. 210 as interest from the two, then the sum of money he lent to Tom was  
 (1) Rs. 144.75 (2) Rs. 148  
 (3) Rs. 156.25 (4) Rs. 165.50

$$\begin{array}{r} 105 \\ 25 \\ \hline 525 \\ 210 \\ \hline 2525 \end{array}$$

$$\frac{500 \times 4 \times 8}{100} + \frac{P \times 4 \times 8}{100} = 210$$

$$\frac{32}{100} [500 + P] = 210$$

$$500 + P = \frac{105}{32} \times \frac{100}{25}$$

$$500 + P = \frac{2625}{4} = 656.25$$

$$P = 656.25 - 500 = 156.25$$

Rohan borrowed a certain sum of money at simple interest. The rate of interest was 3% per annum for first 3 years, 4% per annum for next 5 years and 6% per annum for next 7 years. If he paid Rs. 2059 as interest, then what is the sum borrowed (in Rs.)?

- (1) 2400      (2) 2500  
~~(3)~~ 2900      (4) 3100

$$3 \times 3 + 4 \times 5 + 6 \times 7$$

$$9 + 20 + 42 = 71$$

$$\cancel{71} \cdot \cancel{1} \rightarrow \cancel{2059}^{29}$$

$$100 \rightarrow ?$$

$$2900$$

$$\begin{array}{r} 71 \\ 9 \\ \hline 639 \end{array}$$

$$\begin{array}{r} 29 \\ 71 \quad | \quad 2059 \\ \hline 142 \\ \hline 639 \\ \hline 639 \\ \hline 0 \end{array}$$



A sum of Rs. 3100 is lent out at simple interest in two parts – one at 8% per annum and another at 6% per annum. If the total annual interest is Rs. 212, what is the money (in Rs.) lent at the rate of 8%?

- (1) 1000      (2) 1250  
 (3) 1300      (4) 1400

3100

x

3100 - x

$$\frac{x \times 8 \times 1}{100} + \frac{(3100-x) \times 6 \times 1}{100} = 212$$

$$\begin{array}{ccc}
 248 & & 186 \\
 & \swarrow & \searrow \\
 26 & & 36 \\
 13 : 18 & &
 \end{array}$$

$$\frac{13}{(13+18)} \times 3100 = \underline{\underline{1300}}$$

A sum of Rs. 7500 is divided into two parts. The simple interest on first part at the rate of 12% per annum is equal to the simple interest on second part at the rate of 18%. What is the interest (in Rs.) on each part for one year?

- (1) 600 ~~x~~      (2) 360  
 (3) 480 ~~x~~      (4) 540 ✓

7500

$$x \times 12 \times 1 = \frac{(7500-x) \times 18 \times 1}{100}$$

$$2x = 3 \times 7500 - 3x$$

$$5x = 3 \times 7500$$

$$x = 4500$$

$$\begin{array}{r} 4500 \\ \hline 3000 \\ \hline \begin{array}{l} 4500 \times 12 \times 1 \\ \hline 100 \end{array} & \begin{array}{l} 450 \\ 90 \\ \hline 540 \end{array} \end{array}$$

If the time increases by 5 years,  
then simple interest increases by  
Rs. 3000 on a sum of Rs. 5000.  
What is the rate (in percentage)  
of interest per annum?

- (1) 15      (2) 12  
(3) 10      (4) 6

$$\frac{3000}{5} = \underline{\underline{600}}$$

S.I for 1 year = 600.

$$600 = \frac{5000 \times 1 \times R}{100}$$

$$R = \frac{600}{50} = 12\%$$

~~600 × 100  
5000~~

A sum of money becomes  $\frac{77}{50}$  of

itself in  $\frac{18}{5}$  years when invested at simple interest. What is the rate (in percentage) of interest per annum?

- (1) 20      (2) 18  
(3) 12      ~~(4)~~ 15

$$P \rightarrow \frac{77}{50} P$$
$$N = \frac{18}{5} \text{ yrs}$$
$$R = ?$$

$$\frac{P}{50} \times \frac{18}{5} \times \frac{R}{100} = 27$$
$$R = 15\%$$

Manish lent out Rs. 20000 in two parts. He put out first part at 6% and the second part at 8% interest. The yearly average interest comes out to be 6.4%. What are the amounts (in Rs.) that were lent at 6% and 8% respectively?

- (1) 16000, 4000  
(2) 12000, 8000  
(3) 15000, 5000  
(4) 18000, 2000

$$\begin{array}{c} 6\% \quad 8\% \\ \swarrow \quad \searrow \\ 6.4\% \\ 1.6 \quad 0.4 \end{array}$$

$$4 : 1$$

$$\begin{array}{cc} 16000 & 4000 \\ \hline 5 \rightarrow 20000 \\ 4 \rightarrow ? \\ 1 \rightarrow ? \end{array}$$

Some part of Rs. 17500 was lent at the rate of 24% per annum simple interest and the remaining part at the rate of 10% per annum simple interest. The total interest received after 5 years is Rs. 13300. What is the ratio of money lent at the rate of 24% and 10%?

- (1) 12 : 13      (2) 3 : 4  
 (3) 3 : 2      (4) ~~13 : 22~~

$$\begin{matrix} 24\text{-}\% & & 10\text{-}\% \\ \swarrow & & \searrow \\ 5.2 & & 8.8 \\ & 15.2\% & \end{matrix}$$

24·%

10·%

?

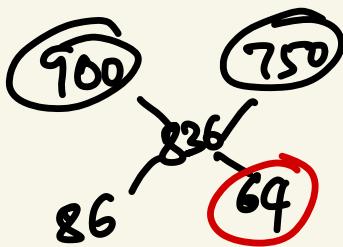
$$13300 = \frac{17500 \times 5 \times \frac{P}{100}}$$

$$P = \frac{2660}{175 \times 5}$$

$$\begin{matrix} 52 : 88 & = & \frac{532}{35} & = & \frac{76}{5} \\ 13 : 22 & & & & = 15.2 \end{matrix}$$

A sum of Rs. 15,000 is invested partly at 12% per annum and the remaining at 10% per annum simple interest. If the total interest at the end of 2 years is Rs. 3,344 how much money was invested at 10% per annum?

- (1) Rs. 6,200 (2) Rs. 6,600  
 (3) ~~Rs. 6,400~~ (4) Rs. 6,500



$$3344 = \frac{15000 \times 2 \times P}{100}$$

$$P = \frac{3344}{150 \times 2} \times \frac{100}{100}$$

$$P = \frac{836}{75} \cdot 1.$$

$$(2 \cdot 1 \cdot 75) \quad (10 \cdot 1 \cdot 75)$$

$$\frac{836}{75} \cdot 1 \cdot 75$$

$$\frac{64}{150} \times 15000 = \underline{\underline{6400}}$$

A sum of Rs. 15,600 is invested partly at 7% per annum and the remaining at 9% per annum simple interest. If the total interest at the end of 3 years is Rs. 3,738, how much money was invested at 7% per annum?

- (1) Rs. 7,800 (2) Rs. 7,900
- (3) Rs. 7,600 (4) Rs. 7,700

# CGL MAINS 2010 - 2019. Questions asked in Simple Interest

1. A man invested  $\frac{1}{3}$  of his capital at 7%,  $\frac{1}{4}$  at 8 % and the remaining at 10% rate of simple interest, if his annual income from interests is Rs.561, the capital invested was

- (a) Rs. 6000    (b) Rs. 5600    (c) Rs.6600    (d) Rs.7200

$$\frac{\frac{1}{3}P \times 7 \times 1}{100} + \frac{\frac{1}{4}P \times 8 \times 1}{100} + \frac{\frac{5}{12}P \times 10 \times 1}{100} = 561$$

$$\frac{1}{3}P \times 7 + \frac{1}{4}P \times 8 + \frac{5}{12}P \times 10 = 561 \times 100$$
$$\frac{28P + 24P + 50P}{12} = 56100 \Rightarrow \frac{102P}{12} = 56100$$
$$P = \underline{\underline{6600}}$$

$\frac{28}{12}$   
 $\frac{24}{12}$   
 $\frac{50}{10}$

7	7	7	7	8	8	8	10	10	10	10	10
---	---	---	---	---	---	---	----	----	----	----	----

12

$$\frac{28+24+50}{12} = \frac{102}{12} = \frac{51}{6} \text{ %.}$$

$$\frac{51}{6} \text{ %.} \rightarrow 561$$

$$100\text{-%.} \rightarrow ?$$

6600.

2. If the simple interest on Rs.  $x$  at a rate of  $a\%$  for  $m$  years is same as that on Rs.  $y$  at a rate of  $a\%$  for  $m^2$  years, then  $x:y$  is equal to

(a)  $m : a$

**(b)**  $am : 1$

(c)  $\frac{1}{m} : \frac{1}{a}$

(d)  $\frac{1}{am} : 1$

$$\frac{x \times a \times m}{100} = \frac{y \times a^2 \times m^2}{100}$$

$$\frac{x}{y} = \frac{a^2 + m^2}{am} = \frac{am}{1}$$

3. A took two loans altogether for RS.1200 from B and C. B claimed 14% simple interest per annum, while C claimed 15% per annum. The total interest paid by A in one year was Rs.172. then, A borrowed-

- (a) Rs. 800 from C  
 (b) Rs. 625 from C  
 (c) Rs. 400 from B  
 (d) Rs. 800 from B

1200

x      1200-x

$$\frac{x \times 14 \times 1}{100} + \frac{(1200-x) \times 15 \times 1}{100} = 172$$

$$14x/12 \quad 15x/12$$

$$\frac{172}{12} \times 12$$

$$14x + 1200 \times 5 - 15x = 17200$$

$$1200 \times 15 - 17200 = x$$

$$100(12 \times 15 - 172) = x \quad x = 800$$

$$168 \quad 180$$

$$8 \quad 72 \quad f$$

4. A person has left an amount of Rs.1,20,000 to be divided between his two sons ages 14 years and 12 years such that they get equal amounts when each attains 18 years of age. If the amount gets a simple interest of 5% per annum, the younger son's share at present is

- (a) Rs. 48,800  
(b) Rs. 57,600 ✓  
(c) Rs. 62,400  
(d) Rs. 84,400

$$A_1 = A_2 \quad P_1 + P_2 = 1,20,000$$
$$P_1 + \frac{P_1 \times 4 \times 5}{100} = P_2 + \frac{P_2 \times 6 \times 5}{100}$$

$$120P_1 = 130P_2 \Rightarrow \frac{P_1}{P_2} = \frac{13}{12}$$
$$P_2 = \frac{12}{25} \times 1,20,000$$
$$\underline{\underline{P_2 = 57600}}$$
$$\begin{array}{r} 48 \\ 12 \\ \hline 96 \\ 48 \\ \hline 576 \end{array}$$

5. Prakash lends a part of Rs.20,000 at 8% simple interest and remaining at  $\frac{4}{3}\%$  simple interest. His total income after a year was Rs.800, find the sum lent at 8%.

- (a) Rs. 8,000  
(b) Rs. 12,000  
(c) Rs. 6,000  
(d) Rs. 10,000

8%

$$\frac{8\%}{20000} \times 100$$

$\frac{4}{3}\%$

$$20000 \\ 2 \cancel{1} \cancel{3} \\ 8000 \quad \underline{12000}$$

8%

$$8\% \quad \frac{4}{3}\% \\ 8:3 \quad 4 \\ 8:12$$

$\frac{4}{3}\%$

2:3

6. The principal which gives Rs.1 interest per day at a rate of 5% simple interest per annum is

- ( a) Rs. 7300
- (b) Rs.3650
- (c) Rs. 5000
- (d) Rs. 36500

$$S.I = P \cdot I / \text{day} \quad R = 5\%$$

$$S.I = P \cdot 365 \text{ for 1 year. } N = 1$$

$$365 = P \times 1 \times \frac{5}{100}$$

$$P = 20 \times 365 = \underline{\underline{7300}}$$

7. At the rate of simple interest per annum, the interest on a certain sum of money for 10 years will be  $\frac{2}{5}$  part of the amount, then the rate of simple interest is-

- (a) 7%
- (b) 4% ✓
- (c) 5%
- (d)  $6\frac{2}{3}\%$

$$S.I = \frac{2}{5}P \quad N=10 \text{ yrs } R=?$$

$$\frac{2}{5}P = T \times 10 \times \frac{R}{100}$$

$$P = T \cdot I \cdot R$$

8. The simple interest on a sum of money is  $\frac{8}{25}$  of the sum, If the number of years is numerically half the rate percent per annum then the rate percent per annum is-

(a) 4

(b)  $6\frac{1}{4}$

(c) 5

~~(d) 8~~

$$S.I = \frac{8}{25} P$$

$$N = \frac{R}{2}$$

$$\frac{8}{25} P = P \times \frac{R}{2} \times \frac{R}{100}$$

$$R^2 = \frac{16 \times 100}{25} = 64 = 8\% \text{ f.}$$

9. A sum of Rs.7930 is divided into 3 parts and given on loan at 5% simple interest to A, B and C for 2, 3 and 4 years respectively. If the amounts of all three are equal after their respective periods of loan, then the A received a loan of-

- (a) Rs. 2760
- (b) Rs. 2750
- (c) Rs. 2800
- (d) Rs. 3050

$$x + \frac{x+2x \times 5}{100} = y + \frac{y+3y \times 5}{100} = z + \frac{z+4z \times 5}{100}$$

$$10x = 115y = 120z$$

$$22x = 23y = 24z$$

$$x : y : z$$

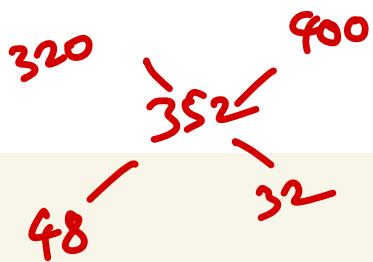
$$\begin{matrix} 552 & : & 528 & : & 506 \\ 276 & : & 264 & : & 253 \end{matrix}$$

$$\begin{matrix} 22 & & 29 \\ 24 & & 28 \\ \hline 48 & & 52 \\ \hline 23 & & 26 \end{matrix}$$

$$\begin{matrix} 10 \\ 276 + 7930 \\ \hline 793 \\ A = 2760 \end{matrix}$$

10. A sum of Rs. 4000 is lent out in two parts, one at 8% simple interest and the other at 10% simple interest. If the annual interest is Rs.352. The sum lent at 8% is.

- (a) Rs. 2900
- (b) Rs. 2200
- (c) ~~Rs. 2400~~
- (d) Rs. 3100



3 : 2

$$\frac{3}{5} \times 4000 = \underline{\underline{2400}}$$

11. If A borrowed Rs. P at x% and B borrowed Rs. Q ( $>P$ ) at y% per annum at simple interest at the same time, then the amount of their debts will be equal after

- (a)  $100\left(\frac{Q-P}{Px-Qy}\right)$  years  
(b)  $100\left(\frac{Px-Qy}{P-Q}\right)$  years  
(c)  $100\left(\frac{Px-Qy}{Q-P}\right)$  years  
(d)  $100\left(\frac{P-Q}{Px-Qy}\right)$  years

$$P + \frac{Px \times x \times N}{100} = Q + \frac{Qx \times y \times N}{100} \quad Q > P$$

$$100P + Px \times x \times N = 100Q + Qx \times y \times N$$

$$\underline{Px \times x \times N - Qx \times y \times N} = \underline{\frac{100Q - 100P}{100}}$$

$$N(Px - Qy) = 100(Q - P)$$

$$N = \frac{100(Q - P)}{Px - Qy} \text{ years}$$

12. If a sum of money becomes 4000 in 2 yrs and 5500 in 4 yrs 6 months at the same rate of simple interest per annum. Then the rate of simple interest is

(a)  $21\frac{2}{7}\%$

(b)  $21\frac{3}{7}\%$

(c)  $21\frac{1}{7}\%$

(d)  $21\frac{5}{7}\%$

$2 \rightarrow 4000$        $4.5 \text{ yrs} \rightarrow 5500$

$\xrightarrow{\quad}$   
2.5 years ha 1500 increase  
ayrtrbu.

$2.5 \rightarrow 1500$

$$1 \rightarrow ? \quad S.I = \frac{1500}{2.5} = \frac{300}{5} = 600$$

$$4000 - 1200 = 2800 = P$$

$$600 = 2800 \times 1 \times \frac{R}{100}$$

$$R = \frac{600}{28} = \frac{150}{7} = 21\frac{3}{7}\%$$

# CGL MAINS 2010 - 2019. Questions asked in Simple Interest

1. A sum of Rs.8,400 amounts to Rs. 11,046 at 8.75% p.a. simple interest in certain time.  
What is the simple interest on the sum of Rs.9,600 Rs. at the same rate for the same time?

(a) 2686

(b) 3012

(c) 2990

(d) 3024

$$A = 11046$$

$$P = \text{Rs. } 8400$$

R = 8.75%

N = ?

$$A = P + \frac{P \times N \times R}{100}$$

$$\begin{aligned} 11046 &= 8400 + \frac{8400 \times N \times 8.75}{100} \\ 11046 - 8400 &= \frac{8400 \times N \times 35}{4} \\ 2646 &= \frac{84 \times N \times 35}{4} \Rightarrow N = \frac{2646}{84 \times 35} \\ N &= \frac{18}{5} \text{ years} \end{aligned}$$

$$S.I = \frac{960 \times 8.75 \times 18}{100 \times 5}$$

$$= \cancel{96} \times \cancel{\frac{25}{4}} \times \cancel{\frac{18}{6}}$$

$$S.I = 24 \times 7 \times 18$$

$$S.I = 3024$$



2. A sum of Rs. 5000 is divided into two parts such that the simple interest on the first part for  $4\frac{1}{5}$  years at  $6\frac{2}{3}\%$  p.a is double the simple interest on the second part for  $2\frac{3}{4}$  years at 4% p.a. what is the difference between the two parts?

(a) 620

(b) 680

(c) 560

(d) 600

$$\begin{aligned}
 & \text{Diagram: A tree diagram showing 5000 at the top, branching into } x \text{ and } 5000-x. \\
 & \text{Equation: } \frac{x \times \frac{21}{5} \times \frac{20}{3} \times 7}{100} = 2x \frac{(5000-x) \times \frac{11}{4} \times 9}{100} \\
 & 28x = 22 \times 5000 - 22x \\
 & 50x = 22 \times 5000 \quad x = \frac{2200}{2800} \\
 & 2800 - 2200 = 600
 \end{aligned}$$

3. A sum lent out at simple interest amount to 6076 in 1 year and 7504 in 4 years. The sum and the rate of interest p.a. are respectively:

- (a) 5600 and 9%
- (b) 5600 and 8.5%
- (c) 5400 and 9%
- (d) 5400 and 10%

$$\begin{array}{r}
 6076 \rightarrow 1 \\
 7504 \rightarrow 4 \text{ yrs} \\
 \hline
 1428
 \end{array}$$

$$\begin{array}{r}
 6076 \\
 476 \\
 \hline
 5600
 \end{array}$$

$$\begin{array}{l}
 \frac{1428}{3} \rightarrow 1 \text{ yr} \\
 476 \rightarrow S.I \text{ for } 1 \text{ yr} \\
 P = 5600 \qquad 476 = 5600 \times \frac{R}{14} \\
 \frac{119}{14} \qquad \frac{476}{56} = R \qquad 14 \times 9 = 126
 \end{array}$$

4. A sum amounts to Rs. 14395.20 at 9.25% p.a. simple interest in 5.4 years. What will be the simple interest on the same sum at 8.6% p.a. in 4.5 years?

(a) 3715.20

(b) 3627 ~~X~~

(c) 3797.76 ~~X~~

(d) 3672 ~~X~~

21

$A \rightarrow 14395.20$   
 $P \rightarrow 9.25\%$   
 $N \rightarrow 5.4 \text{ yrs.}$

$$14395.2 = P + \frac{P \times 5.4 \times 9.25}{100}$$

$$14395.2 = \frac{100P + 49.950P}{100}$$

$$14395.200 = 149.95P$$

1 2  
9 2 5  
5 4 2

3 7 0 0 1  
4 6 2 5  
4 7 9 5 0

149.95

↓  
2999  
—  
20

$$1439520 = \underline{149.95P}$$

$$P = \frac{1439520 \times 20}{2999}$$

$$P = 480 \times 20$$

$$P = 9600$$

$$S.I = \frac{9600 \times 8.6 \times \frac{9}{2}}{100}$$

$$S.I = 48 \times 8.6 \times 9 = 3715.2$$

$$\begin{array}{r} 480 \\ 2999 \sqrt{1439520} \\ \hline 11996 \\ \hline 23992 \\ 23992 \\ \hline 0 \end{array}$$

5. A person invested one-fourth of the sum of Rs.25,000 at a certain rate of simple interest and the rest at 4% p.a. higher rate. If the total interest received for 2 years is Rs.4125. what is the rate at which the second sum was invested?

- (a) 9.5%      (b) 9.25%      (c) 5.25%      (d) 7.5%<sup>s</sup>

$$\frac{1}{4} \times \frac{25000 \times R \times 2}{100} + \frac{3}{4} \times \frac{25000 \times (R+4) \times 2}{100} = 4125$$

$$\left[ \frac{2 \times 2500}{4} \right] [R + 3(R+4)] = 4125$$
$$R + 3R + 12 = 33$$
$$4R = 21 \quad \underline{R = 5.25}$$

6. A sum of Rs. 10,500 amounts to Rs. 13,825 in  $3\frac{4}{5}$  years at a certain rate percent per annum simple interest. What will be the simple interest on the same sum for 5 years at double the earlier rate?

- (a) 8,470    (b) 8,750    (c) 8,670    (d) 8,560

$$13825 = 10500 + 10500 \times \frac{19}{5} \times \frac{R}{100}$$

$$\frac{13825 - 10500}{10500} = \frac{21}{5} \times \frac{19}{5} \times R$$

$$R = \frac{475}{21 \times 19} = \frac{25}{3}\%$$

Now

$$\frac{10500 \times 5 \times 50}{100} = 35 \times 5 \times 50 = 35 \times 250 = 8750.$$

7. A certain sum is lent at 4% p.a. for 3 years, 8% p.a. for the next 4 years, and 12% p.a. beyond 7 years. If for a period of 11 years, the simple interest obtained is Rs.27,600, then the sum is (in Rs.):

- (a) 27,000      (b) 25,000      (c) 30,000      (d) 32,000

8. The rate of interest for the first 2 years is 6% p.a, for the next 3 years is 10% p.a, and for the period beyond 5 years is 12% p.a. if a person gets Rs.12,771 as simple interest after 7 years, then how much money did he invert?

(a) Rs. 19450

(~~b~~) Rs. 19,350

(c) Rs.19,300

(d) Rs.20,000

$$2 \times 6 + 3 \times 10 + 2 \times 12 \Rightarrow 12 + 30 + 24 = 66$$

$$\cancel{26} \cancel{66} \Rightarrow \cancel{12771} \overset{+6f}{387}$$

$$\cancel{100} \rightarrow ?$$

50

$50 \times 387$

$$\begin{array}{r} 4 \\ .387 \\ \hline 1935 \end{array}$$

19350

9. In how much time will the simple interest on a certain sum of money be  $\frac{6}{5}$  times of the sum at 20% per annum?

- (a) 8 Years    (b) 7 Years    (c) 6 Years    (d) 5 Years

$$\frac{6}{5} P = P \times 20 \times N / 100$$

$$N = 6 \text{ yrs}$$

10. At what rate of interest will a sum of Rs.4,500 amount to Rs.6,525 at simple interest for 5 Years?

- (a) 9%
- (b) 8%
- (c) 10%
- (d) 12 %