

SIMPLE INTEREST

50% off

R>

100

10%

-) 10 R>

SI

2-5
20

A

100+10 = 110

$100 \times \frac{10}{100}$

P.

?
-

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

$SI = \frac{P \times t}{100}$

$$SI = \frac{P \times t}{100}$$

u

3

SI - Simple interest - RS

P - Principal - RS

$$\frac{100}{P + SI} \text{ 10}$$

r - Rate of interest - %

t - Time - years

$$2 \text{ months} = \frac{2}{12} \text{ year}$$

$$A = P + SI$$

A - Amount - RS

Sum - P

SI on RS. x \times P

Amount - A

Amounts to RS. y - A

Becomes RS. y - A

SI
P
A

The simple interest on a certain sum for two years is ₹1000 at the rate of 10% per annum. What is the amount after these two years?

- 1. ₹6500
- 2. ₹6000
- 3. ₹7000
- 4. ₹5500

$$SI = 1000$$

$$t = 2 \text{ yr} \quad r = 10\% \quad A = ?$$

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

$$1000 = \frac{P \times 10 \times 2}{100}$$

$$P = 1000 \times 5 = 5000$$

$$A = P + SI$$

$$\begin{aligned} A &= 5000 + 1000 \\ &= 6000 \end{aligned}$$

The simple interest on a principal for 6 months at an interest rate of 10% per annum is ₹100. What is the principal?

- 1. ₹1000
- 2. ₹2000
- 3. ₹1500
- 4. ₹2500

$$SI = 100 \quad t = 6 \text{ months} = \frac{6}{12} \text{ yrs}$$
$$P: ?$$
$$r = 10\%$$
$$SI = \frac{Prt}{100}$$

$$100 = \frac{P \times 10 \times 6}{100 \times 12}$$

$$P = 100 \times 10 \times 2 = 2000$$

A sum of ₹2000 is invested on simple interest for three years at the rate of 10% per annum, then the amount will be:

X 1. ₹2900

✓ 2. ₹2600

X 3. ₹2300

X 4. ₹2500

$$P = 2000$$

$$T = 3 \text{ yrs}$$

$$R = 10\%$$

$$A = P + SI$$

$$\begin{aligned} A &= 2000 + 600 \\ &= 2600 \end{aligned}$$

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

$$SI = \frac{2000 \times 10 \times 3}{100} = 600$$

$$SI = 600$$

A sum of ₹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 ₹1590. What is the value of x ?

1. 3.2

2. 2.4

3. 32

4. 24

$$P = 1500 \quad t = \frac{x}{12} \text{ years} \quad r = \frac{x}{8}\%.$$

$$A = 1590 \quad SI$$

$$\begin{array}{r} 1500 \\) 90 \\ 1590 \end{array}$$

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

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

$$x^2 = \frac{9 \times 2 \times 2 \times 2 \times 2}{1}$$

$$\left. \begin{aligned} x &= \sqrt{9^2 \times 2 \times 2 \times 2 \times 2} \\ x &= 3 \times 2 \times 2 \times 2 \\ x &= 24 \end{aligned} \right\}$$

If the ratio of principal and the simple interest for 5 years is $10 : 7$, then the rate of interest (per annum) is:

- 1. 15%
- 2. 20%
- 3. 10%
- 4. 14%

$$P = 10 \quad SI = 7 \quad DI : SI = 10 : 7$$

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

$$SI = \frac{P \times t}{100}$$

$$7 = \frac{10 \times 1 \times R}{100}$$
$$2$$

$$R = 14\%.$$

X took a loan of ₹5000 on simple interest, the rate of interest being the same as the number of years for which the loan was taken. If the interest paid was ₹1800, then what was the rate of interest?

- 1. 6.5%
- 2. 6%
- 3. 5%
- 4. 5.5%

$$\begin{array}{l} SI = 1800 \\ P = 5000 \end{array}$$

$$r = ? \quad r = t$$

$$SI = \frac{Prt}{100}$$

$$1800 = \frac{5000 \times r \times r}{100}$$

$$r^2 = 6^2$$

$$r = 6\%$$

What is the simple interest on ₹35000 at $\frac{18}{7}\%$ per annum for a period of 9 months?

✓ 1. ₹675

✗ 2. ₹600

✗ 3. ₹875

✗ 4. ₹700

P
R
t

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

$$SI = \frac{35000 \times 25 \times 9}{100 \times 7 \times 2}$$

$$t: 9 \text{ months} = \frac{9}{12} \text{ years}$$

$$\frac{75}{615} \text{ g}$$

$$SI = 675$$

Sub

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

$$SI = P \quad t = r$$

$$SI = \frac{P \times r \times t}{100}$$

$$SI = \frac{P \times r \times t}{100}$$

$$t^2 = 100$$

$$t^2 = 10^2$$

$$t = 10$$

The simple interest on ₹ x for m years at a rate of $r\%$ is equal to the same on ₹ y for n years at the rate of $s\%$. Then $\frac{x}{y}$ is equal to:

X 1. $\frac{nr}{ms}$

$$SI_1 = P_1 t_1 = m \quad r_1 = r\%$$

$$SI_2 = P_2 t_2 = y \quad t_2 = n \quad r_2 = s\%$$

✓ 2. $\frac{ns}{mr}$

$$SI = \frac{Prt}{100}$$

$$SI_1 = \frac{P_1 r_1 t_1}{100}$$

$$SI_2 = \frac{P_2 r_2 t_2}{100}$$

X 3. $\frac{ms}{nr}$

$$SI_1 = SI_2$$

X 4. $\frac{mr}{ns}$

$$\frac{xym}{100} = \frac{ysn}{100}$$

$$\frac{r}{y} = \frac{sn}{tm} = \frac{ns}{mr}$$

What sum of money must be given at simple interest for six months at 4% per annum in order to earn ₹ 150 interest?

- (a) ₹ 5000 (b) ₹ ~~7500~~
- (c) ₹ 10000 (d) ₹ 15000

$$P = ?$$

$$T = \frac{6}{12} \text{ year}$$

$$R = 4\%$$

$$SI = 150$$

$$150 = \frac{P \times 4 \times 6}{100 \times 12}$$
$$150 = \frac{P \times 2}{50}$$

$$P = 150 \times 50 = 7500$$

If the simple interest on a sum of ₹ x at 6% p.a. for two years is double the simple interest on another sum of ₹ y at 9% per annum for three years, then which of the following is true?

\times 1. $x = 2y$

\checkmark 2. $x = 4.5y$

\times 3. $3x = 7y$

\times 4. $2x = 5y$

$SI_1 : SI_2 = 2 : 1$

$\frac{P_1 R_1 T_1}{100} : \frac{P_2 R_2 T_2}{100} = 2 : 1$

$\frac{x \times 6 \times 2}{y \times 9 \times 3} = \frac{2}{1}$

$2x = \frac{9y}{4.5}$

$x = \frac{9}{2} y$

$x = 4.5y$

At the rate of 8% the amount invested earns a simple interest of ₹240 after 3 years. If the rate of interest been 5% more, then how much more interest would it have earned?

X 1. ₹105

r: 8%

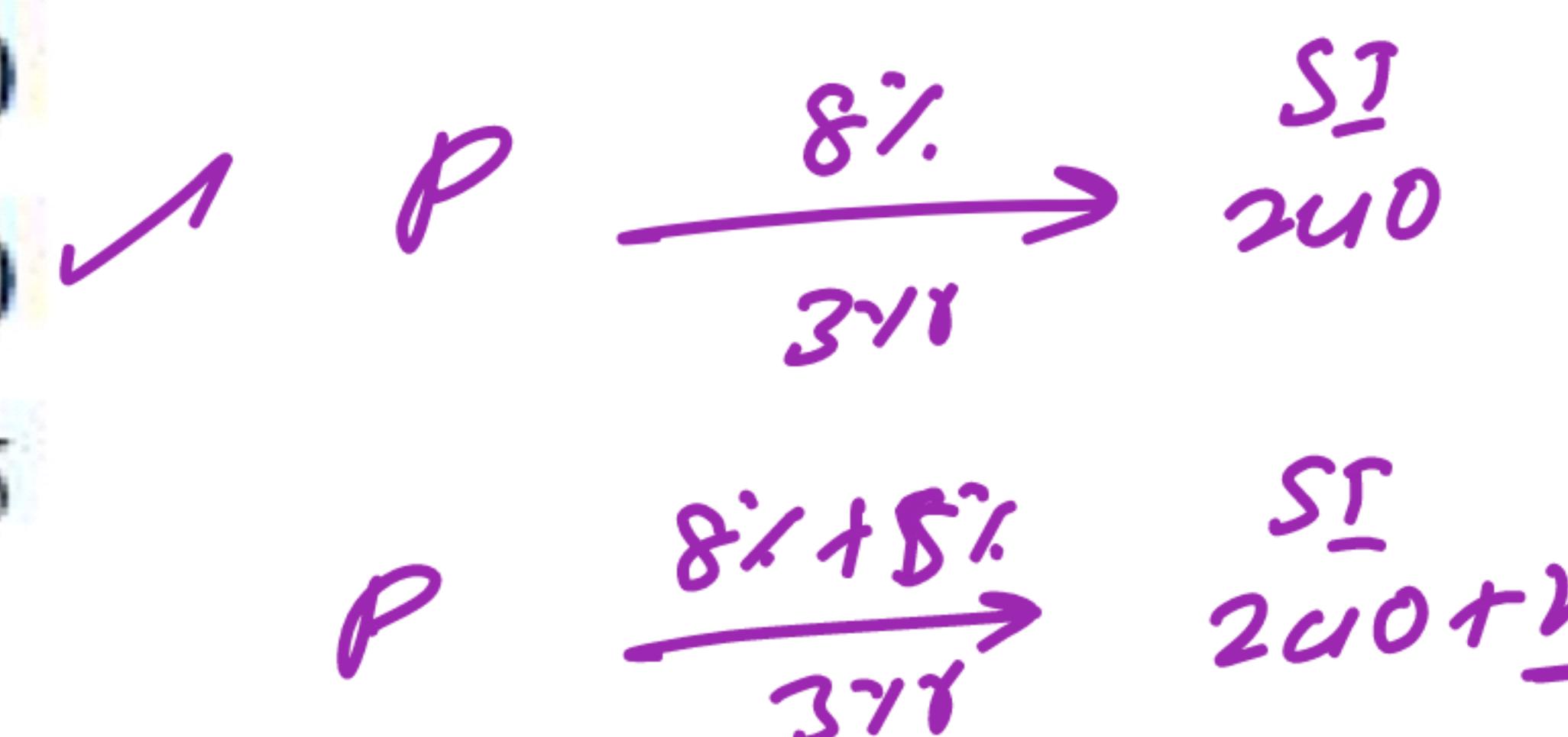
P

SI = 240 f = 3

X 2. ₹180

✓ 3. ₹150

X 4. ₹135



$$\begin{aligned} 8\% &\rightarrow 240 \\ 5\% &= \frac{240}{8\%} \times 5\% \\ &= 150 \end{aligned}$$

$$100 \xrightarrow{10\%} 10$$

$\boxed{5\% \rightarrow 5}$

5% extra $\div 2$ ($10\% \rightarrow 10$) $\div 2$

5 extra $\cdot 5\% \rightarrow 5$

$$x \xrightarrow[2\%]{10\%} 20$$

$$x \xrightarrow[1\%]{5\% \text{ on 10}} \underline{\quad}$$

$$\div 2 \left(\begin{array}{c} 10\% \\ 5\% \end{array} \right)$$

$$20 \div 2$$

$10 \rightarrow \text{down}$

$$10\% \rightarrow 20$$

$$5 \rightarrow \frac{20}{10\%} \times 5\% = 10$$

A sum was invested on simple interest at a certain rate for 2 years. Had it been put at 3% higher rate, it would have fetched ₹ 72 more. The sum is:

- (a) ₹ 1,200 (b) ₹ 1,500
- (c) ₹ 1,600 (d) ₹ 1,800

$$\begin{array}{ccc}
 P & \xrightarrow[2\%]{3\%} & 72 \\
 \swarrow 100\% & & \\
 \xrightarrow[1\%]{3\%} & & 36
 \end{array}$$

$$\begin{aligned}
 3\% &= 36 / 12 \\
 P = 100\% &= \frac{36}{3\%} \times 100\% \\
 &= 1200
 \end{aligned}$$

A sum of money was lent at simple interest at certain rate for 3 years. Had it been lent at 2.5% per annum higher rate, it would have fetched ₹ 540 more.

The money lent was:

- (a) ₹ 6400 (b) ₹ 6472
- (c) ₹ 6840 (d) ₹ 7200

$$\begin{array}{ccc} 3 \text{ yrs} & \xrightarrow{2.5\%} & 540 \\ (\div 3) & & \frac{1}{3} \\ 1 \text{ yr} & \xrightarrow{2.5\%} & 180 \end{array}$$

$$2.5\% = 180$$

$$P = 100\% = \frac{1800}{25\%}$$

$$P = 7200$$

A sum of money was invested at a certain rate of simple interest for 2 years. Had it been invested at 1% higher rate, it would have fetched ₹ 24 more interest. The sum of money is:

- (a) ₹ 1200 (b) ₹ 1050
- (c) ₹ 1000 (d) ₹ 9600

$$2\text{yr} \xrightarrow{1\%} 24$$

$$1\text{yr} \xrightarrow{1\%} 12$$

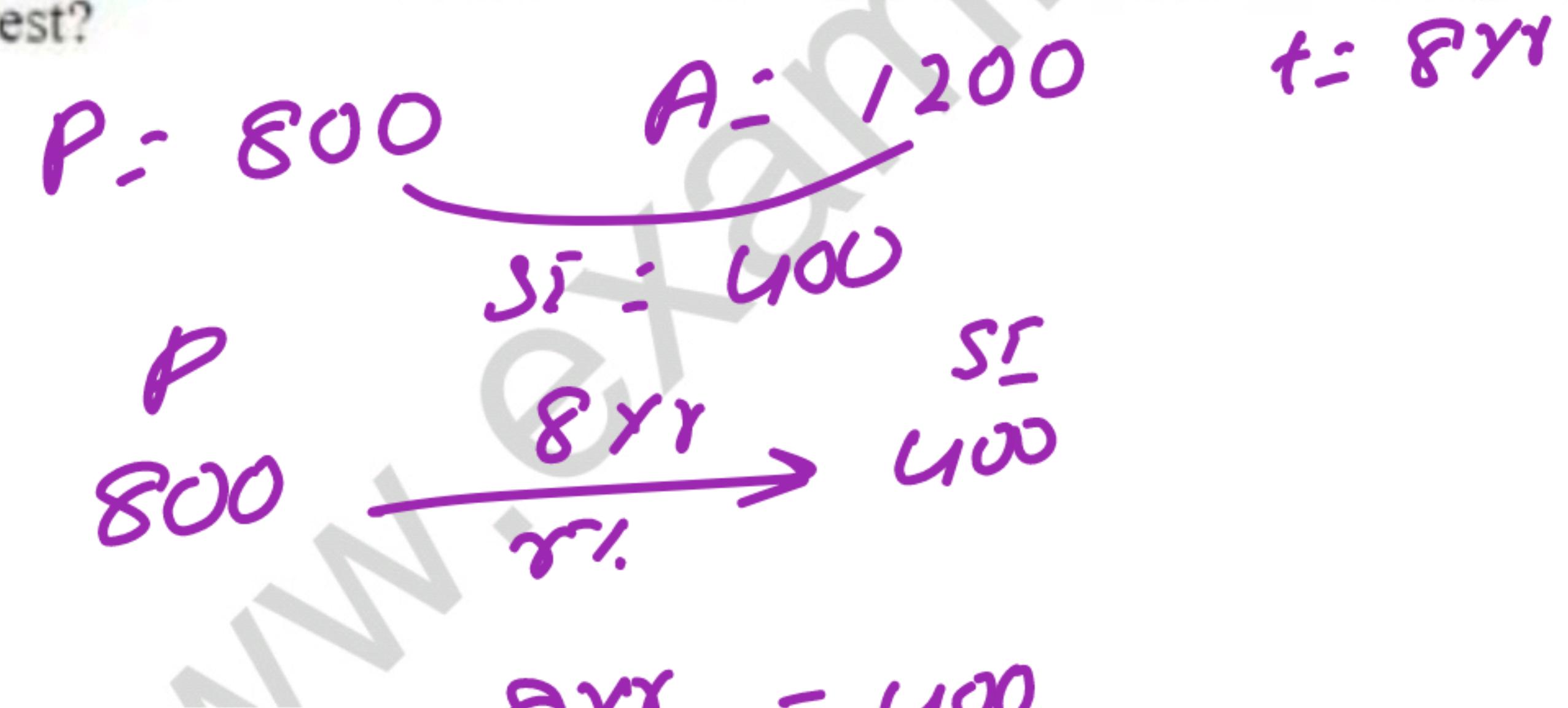
$$1\% = 12$$

$$100\% = 1200$$

4 3

A sum of ₹800 invested on simple interest becomes ₹1200 in 8 years. What will be simple interest for 6 years on the sum at the same rate of interest?

- 1. ₹240
- 2. ₹210
- 3. ₹250
- 4. ₹300 ✓



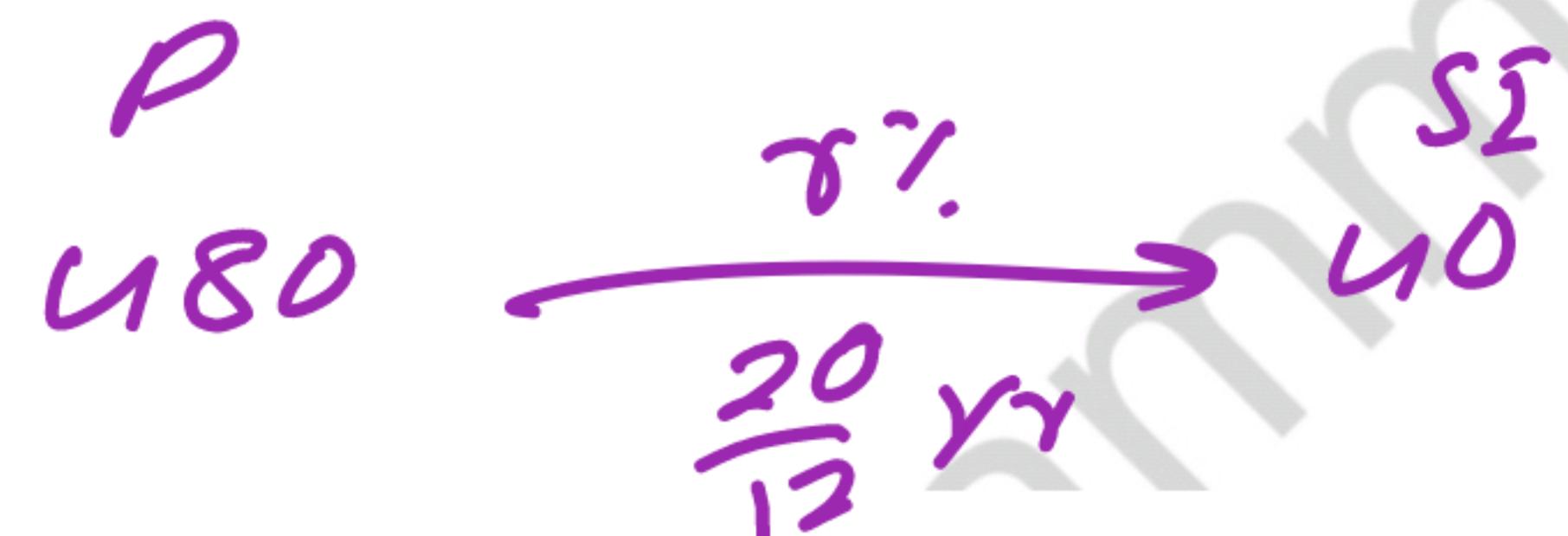
$$8 \text{ yr} = 400 \text{ S.I.}$$
$$6 \text{ yr} = \frac{400}{8} \times 6 = 300$$

₹480 is invested at simple interest. It becomes ₹520 after 20 months. What is the interest rate per annum?

- P -
- 1. 6%
 - 2. 5% ✓
 - 3. 8%
 - 4. 4%

$$A = \frac{20}{12} \text{ yrs}$$

$$SI = A - P = 520 - 480 = 40$$



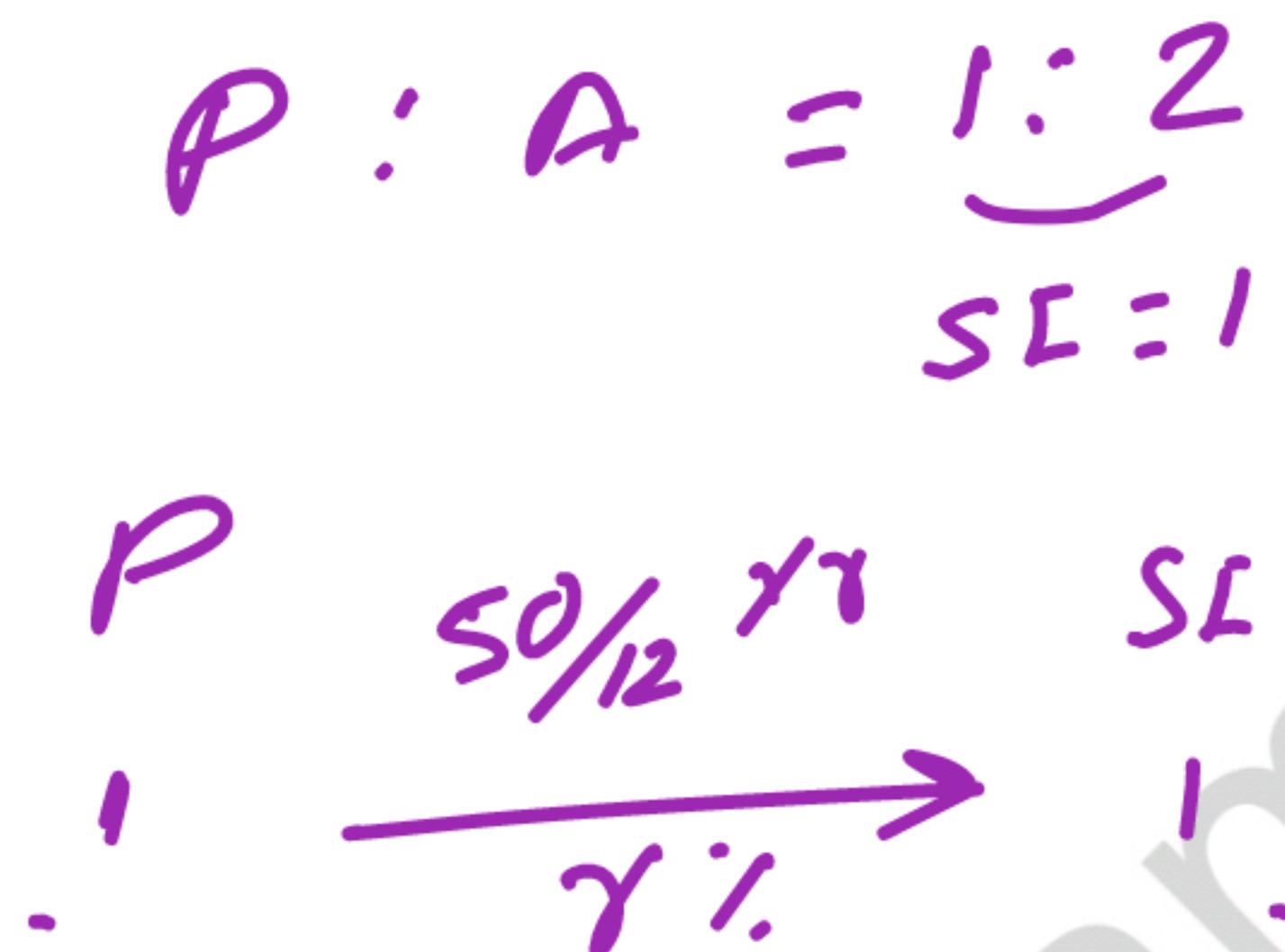
$$SI = \frac{Prt}{100}$$

$$40 = \frac{480 \times r \times 20}{100 \times 12}$$

$$r = 5\%$$

A sum of money becomes double of itself in 50 months when invested on simple interest. What is the rate of interest per annum?

- 1. 26%
- 2. 25%
- 3. 20%
- 4. 24%



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

$$I = \frac{1 \times \gamma \times 50}{100 \times 12}$$

$$\gamma = 24 \cancel{\%}$$

A sum doubles in seven years at simple interest. In how many years will the sum become five times the original sum?

X 1. 35

X 2. 21

✓ 3. 28

X 4. 30

$$P : A = 1 : 2$$

$$SI = 1$$

$$\begin{array}{ccc} P & \xrightarrow[7\%]{R} & SI \\ \downarrow & \nearrow 7\% & \downarrow 1 \end{array}$$

$$P : A = 1 : 5$$

$$SI = 4$$

$$\begin{array}{ccc} P & \xrightarrow[7\%]{R} & u \\ \downarrow & \nearrow x\% & \downarrow \\ 1 & & u \end{array}$$

$$\begin{array}{ccc} 4 \times (7\%) & \xrightarrow{1} & 4 \times 4 \\ 28 & \xrightarrow{x\%} & u \end{array}$$

A certain sum of money becomes three times of itself in 20 years at simple interest. In how many years does it become double of itself at the same rate of simple interest?

- (a) 8 years (b) 10 years
- (c) 12 years (d) 14 years

$$2 \div (\frac{20 \text{ yr}}{x \text{ yr}} \rightarrow \frac{2}{1}) \div 2$$

$$10 \text{ yr}$$

① $P:A = 1:3$
 $SI = 2$

$P \xrightarrow[\text{yr}]{20 \text{ yr}} SI \xrightarrow[\text{yr}]{2}$

② $P:A = 1:2$
 $SI = 1$

$P \xrightarrow[\text{yr}]{x \text{ yr}} SI \xrightarrow[\text{yr}]{1}$

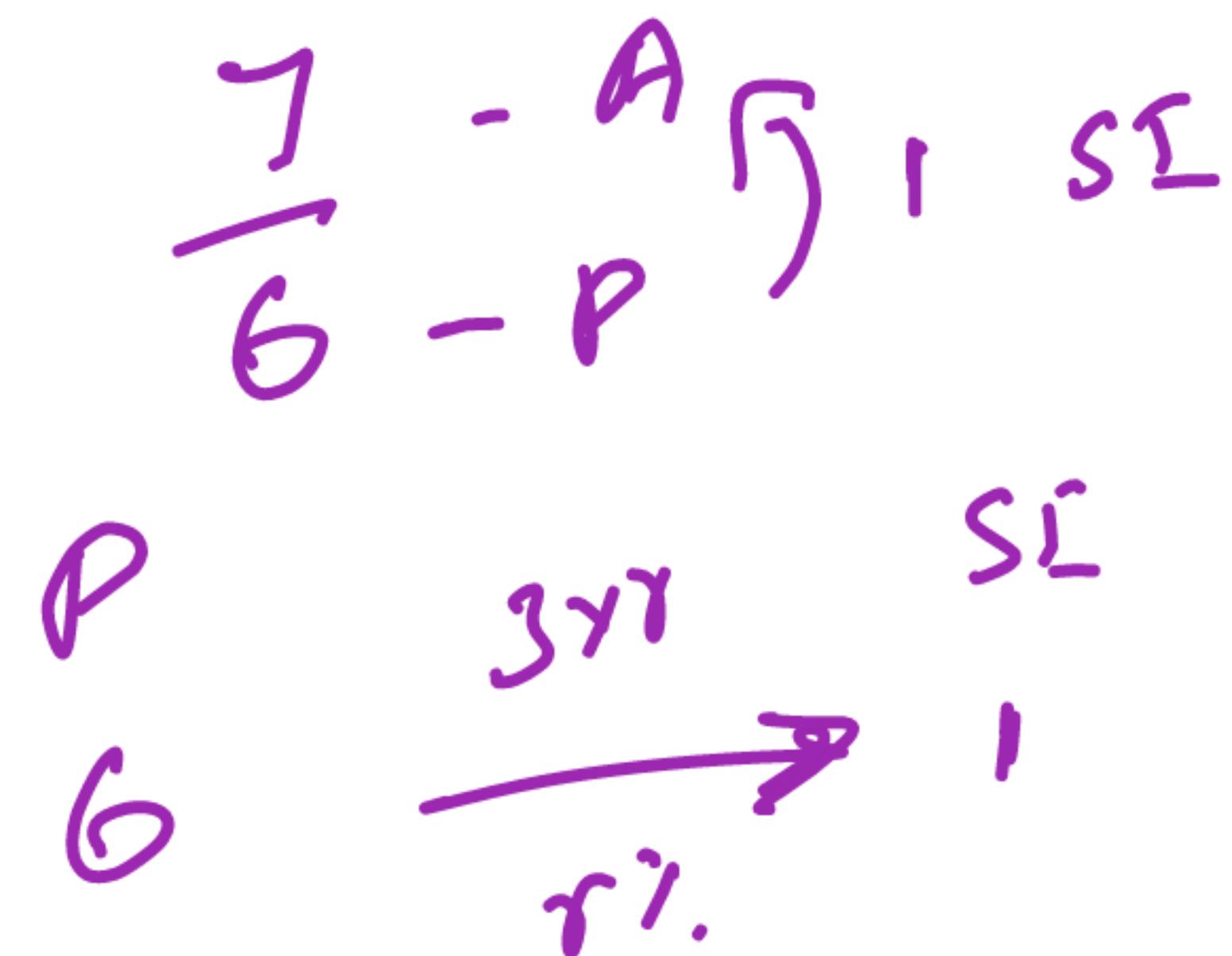
A sum of money at a certain rate per annum of simple interest doubles in the 5 years and at a different rate becomes three times in 12 years. The lower rate of interest per annum is

- (a) 15%
 - (b) 20%
 - (c) $15\frac{3}{4}\%$
 - (d) $16\frac{2}{3}\%$

A sum of money becomes $\frac{7}{6}$ of itself in 3 years at a certain rate of simple interest. The rate of interest per annum is:

- (a) $5\frac{5}{9}\%$
- (b) $6\frac{5}{9}\%$
- (c) 18%
- (d) 25%

$$r = \frac{\frac{100}{18} \times 50}{9} = \frac{50}{9} \times 5\frac{5}{9}\%.$$



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

$$I = \frac{6 \times r \times 3}{100}$$

The simple interest on a sum of money is $\frac{4}{9}$ of the principal and the number of years is equal to the rate percent per annum. The rate per annum is:

(a) 5%

(b) $6\frac{2}{3}\%$

(c) 6%

(d) $7\frac{1}{5}\%$

$$\gamma = \frac{10 \times 2}{3} = \frac{20}{3} 6\frac{2}{3}\%$$

$$\frac{U - SI}{9} = P$$

$$t = \gamma$$

$$SI = \frac{P \gamma t}{100}$$

$$U = \frac{9 \times \gamma^2}{100}$$

$$\gamma^2 = \frac{102 \times 2^2}{3^2}$$

In what time will the simple interest be $\frac{2}{5}$ of the principal at 8 percent per annum ?

- (a) $\frac{8}{5}$ years (b) 7 years
(c) $\frac{5}{8}$ years (d) 6 years

$t=?$

$$\frac{2 - SI}{SI} = \frac{8}{P}$$

$$8:8\%.$$

$$SI = \frac{P \times t}{100}$$

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

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

The simple interest for 9 years on a principal is $\frac{3}{5}$ of the principal. What is the rate of interest per annum?

1. 6%

2. 4%

3. $6\frac{2}{3}\%$ ✓

4. $5\frac{2}{3}\%$

$$\frac{3}{5} - SI \quad t = 9 \quad r = ?$$
$$SI = P \times \frac{r \times t}{100}$$

$$3 = \frac{8 \times r \times 9}{100}$$

$$r = \frac{20}{3} = 6\frac{2}{3}\%$$

A sum of ₹10000 is lent on simple interest at the rate of 15% per annum. What is the difference between Simple interest for 6 years and the simple interest for 2 years?

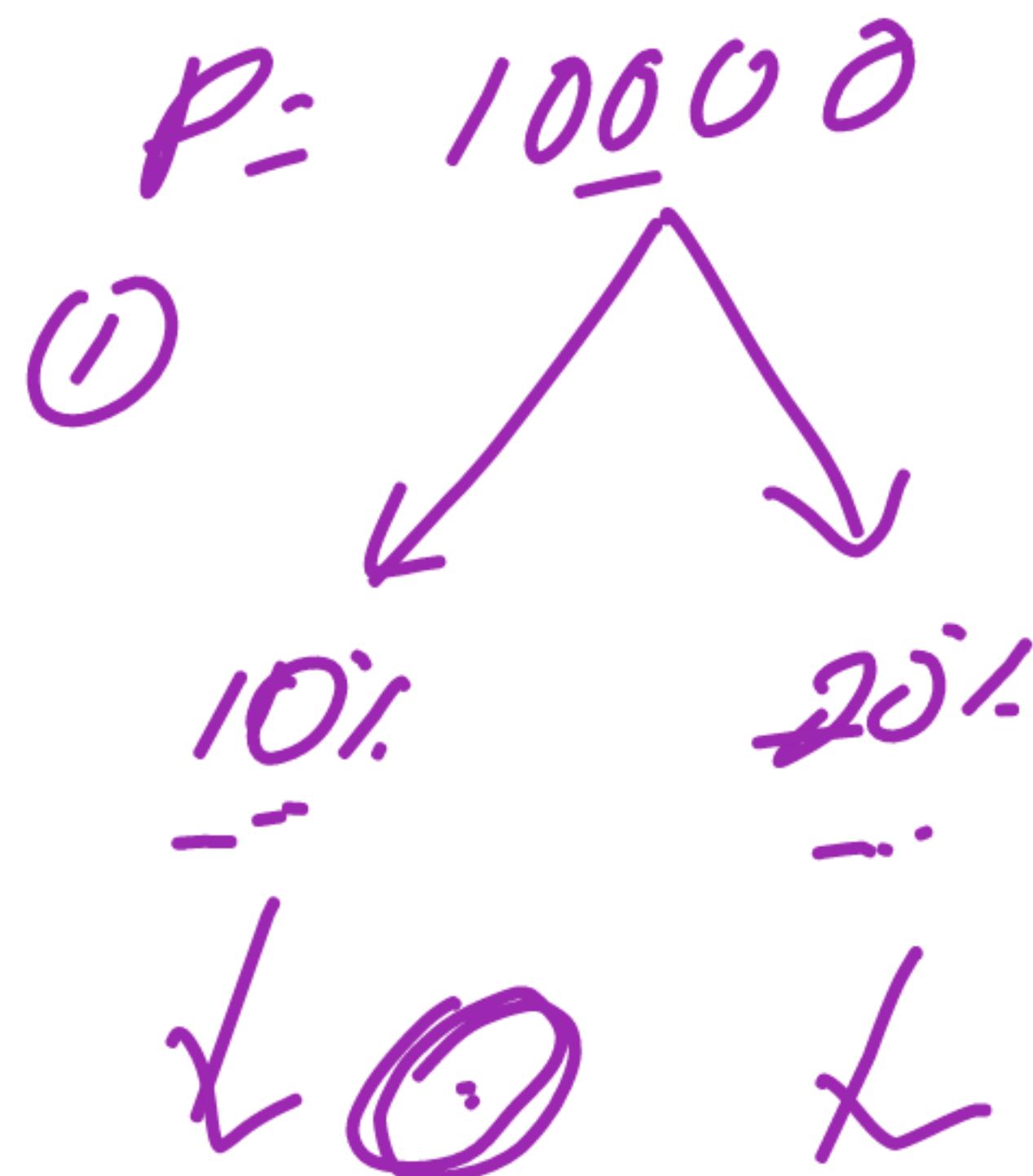
- 1. ₹4000
- 2. ₹8000
- 3. ₹6000
- 4. ₹4500

$$SI = \frac{10000 \times 15 \times 4}{100} = 6000$$

A sum of ₹ 10,000 is lent partly at 8% and remaining at 10% per annum. If the yearly interest on the average is 9.2%, the two parts are:

- (a) ₹ 4000, ₹ 6000
- (b) ₹ 4500, ₹ 5500

$$\begin{aligned} & \text{I} & \text{II} & \text{III} \\ & 8\% & 10\% & 9.2\% \\ & \text{---} & \text{---} & \text{---} \\ & S = 10000 & & \\ & I = \frac{1000}{18} & & \\ & & & \\ & 0.8 & 1.2 & 2 = 2000 \\ & 8 : 12 & & \\ & 2 : 3 = 5 & & 3 = 6000 \end{aligned}$$



Total - FN: 300

12
20
30
25

$$\frac{1}{2} : \frac{3}{1} = \frac{5}{j} : \frac{5}{j}$$

A sum of ₹ 1550 was lent partly at 5% and partly at 8% simple interest. The total interest received after 3 years is ₹ 300.

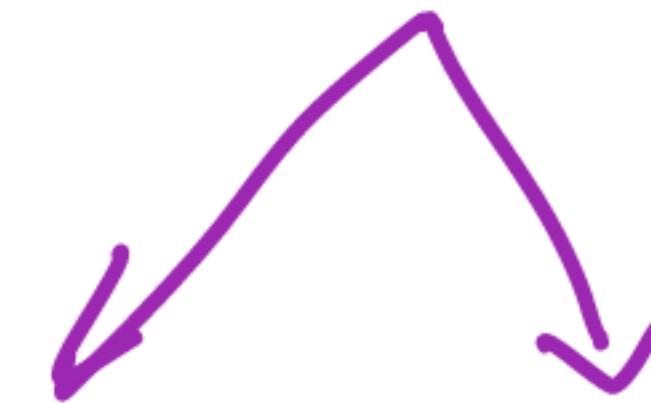
The ratio of money lent at 5% to that at 8% is:

- (a) 5 : 8
- (b) 8 : 5
- (c) 31 : 6
- (d) 16 : 15

$$\begin{array}{rcl}
 3\text{ yrs} & \rightarrow & 300 \\
 -1\text{ yr} & \rightarrow & 100 \\
 P & & + \\
 1550 & \xrightarrow[1\text{ yr}]{\text{100}} & 100 \\
 & & \text{?} \frac{31}{1550 \times 8\%} \\
 100 = & & \frac{100}{2} \\
 & & 2 \\
 \text{?} = & \frac{200}{31} \%.
 \end{array}$$

②

$$P: 10000 \xrightarrow{9.2\%} 10000 \times \frac{92}{100} = 920$$



$$\frac{8\%}{4000} \quad \frac{8\%+2\%}{= 6000}$$

$$8\% = 10000 \times \frac{8}{100} = 800 + \underline{120}$$

$$\underline{\text{II}} \quad 2\% = 120 \times \frac{60}{2\%}$$

$$100\% = \frac{120}{2\%} \times 100\% = 6000$$

A sum of ₹10000 is invested in three schemes of simple interest. The annual interest rates are respectively, 4%, 6% and 10%. ₹4000 were invested in the first scheme. If the total interest earned after five years is ₹2800, then how much money was invested in the third scheme?

- 1. ₹1500
- 2. ₹5000
- 3. ₹1000 ✓
- 4. ₹3000

$$\begin{array}{c} 18\% \\ \diagdown \\ 20\% \end{array} \quad \begin{array}{c} 30\% \\ \diagup \\ 20\% \end{array} \quad \begin{array}{c} 6\% \\ \diagup \\ 10\% \end{array}$$

$$5 : 1 = 6 \Rightarrow 6000$$

$$(20\%)$$

$$10000 \xrightarrow{5\text{ yrs}} 2800$$

$$4000 \swarrow \rightarrow 1\% \rightarrow 560 \leftarrow 160$$

$$6000 \xrightarrow{1\%} 400 \leftarrow 160$$

$$\frac{10000 \times 4}{100} = 160$$

$$\frac{20}{400} = \frac{6000 \times 1}{100}$$

$$r = \frac{20}{8}\%$$

$$\begin{aligned} 5 &= 5000 \\ 1 &= 1000 \end{aligned}$$

$$\begin{array}{r} 560 \\ 2800 \\ \hline 8 \end{array}$$

A sum of ₹50,000 is lent partly at 4% and remaining at 5% per annum. If the yearly simple interest on the average is 4.6%, the two parts are:

- 1. ₹22500, ₹27500
- 2. ₹15000, ₹35000
- 3. ₹20000, ₹30000
- 4. ₹25000, ₹25000

$$\begin{array}{c} ? \\ 4\% \quad 5\% \\ \overline{4.6\%} \\ 0.4 \quad 0.5 \\ \overline{0.46} \\ 2 : 3 = 5 \Rightarrow 50000 \\ | \quad | \\ 20000 \quad 30000 \end{array}$$

$$\begin{array}{c} \text{I} \\ 5 : x_1 \\ 8 : x_2 \\ \left(\frac{200}{31} x \right) \end{array}$$

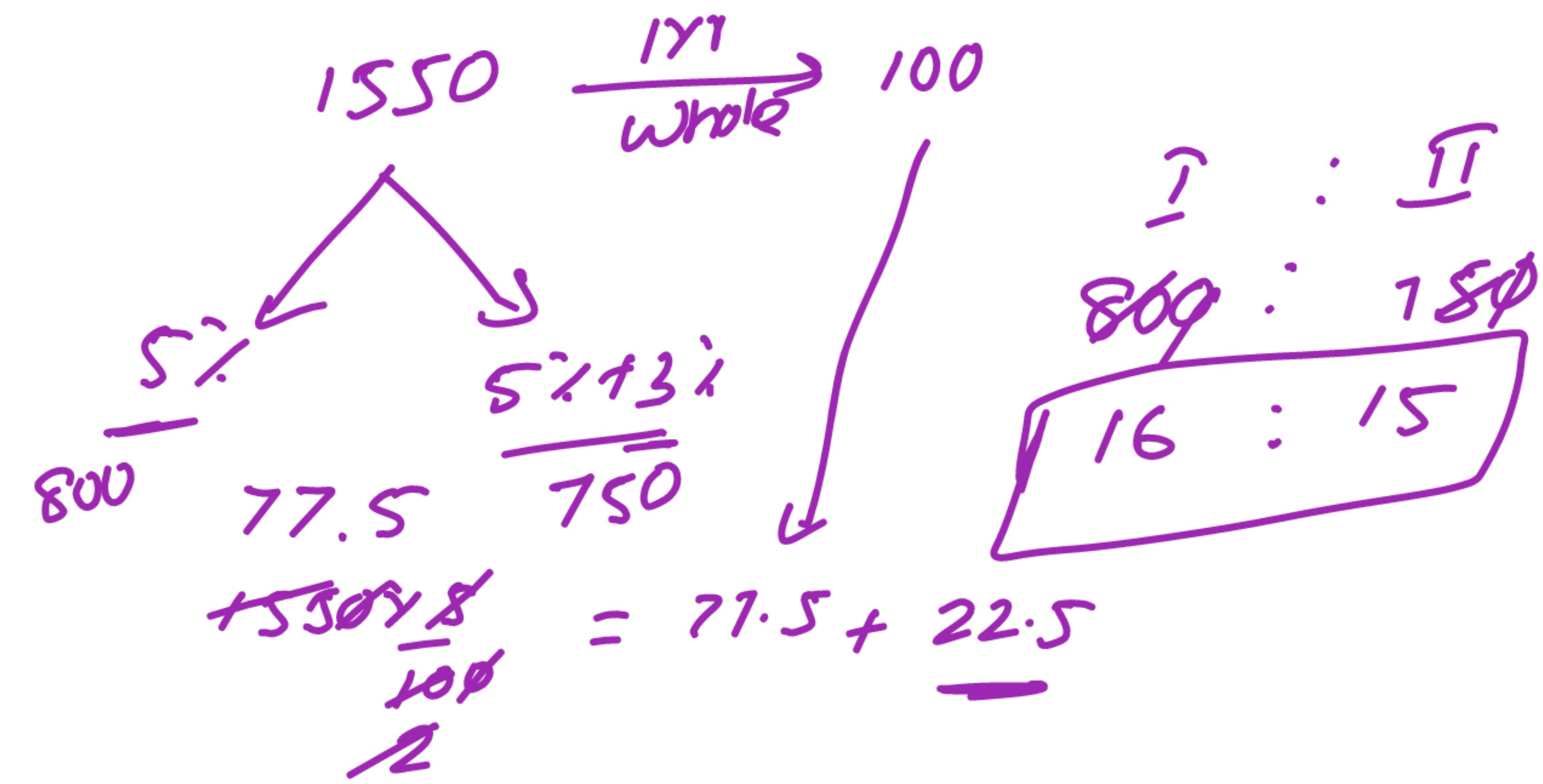
$$\begin{array}{c} \text{I} \\ 155x \\ \rightarrow 200\% \\ \diagdown \\ 48 : 45 \\ 16 : 15 \checkmark \end{array}$$

A sum of ₹ 10000 is lent partly at 8% and remaining at 10% per annum. If the yearly interest on the average is 9.2%, then both parts are respectively.

- 1. ₹ 5500 and ₹ 4500
- 2. ₹ 4500 and ₹ 5500
- 3. ₹ 5000 and ₹ 5000
- 4. ₹ 4000 and ₹ 6000

$$\begin{array}{ccc} \frac{1}{8}\% & & \frac{11}{10}\% \\ \swarrow & & \searrow \\ 0.8 & & 1.2 \\ \swarrow & & \searrow \\ 8 : 12 & & \cancel{\times 2} \\ \cancel{\times 2} \swarrow & & \searrow \\ 4000 & & 6000 \end{array}$$
$$2 : 3 = 5 \Rightarrow \underline{10000}$$

②

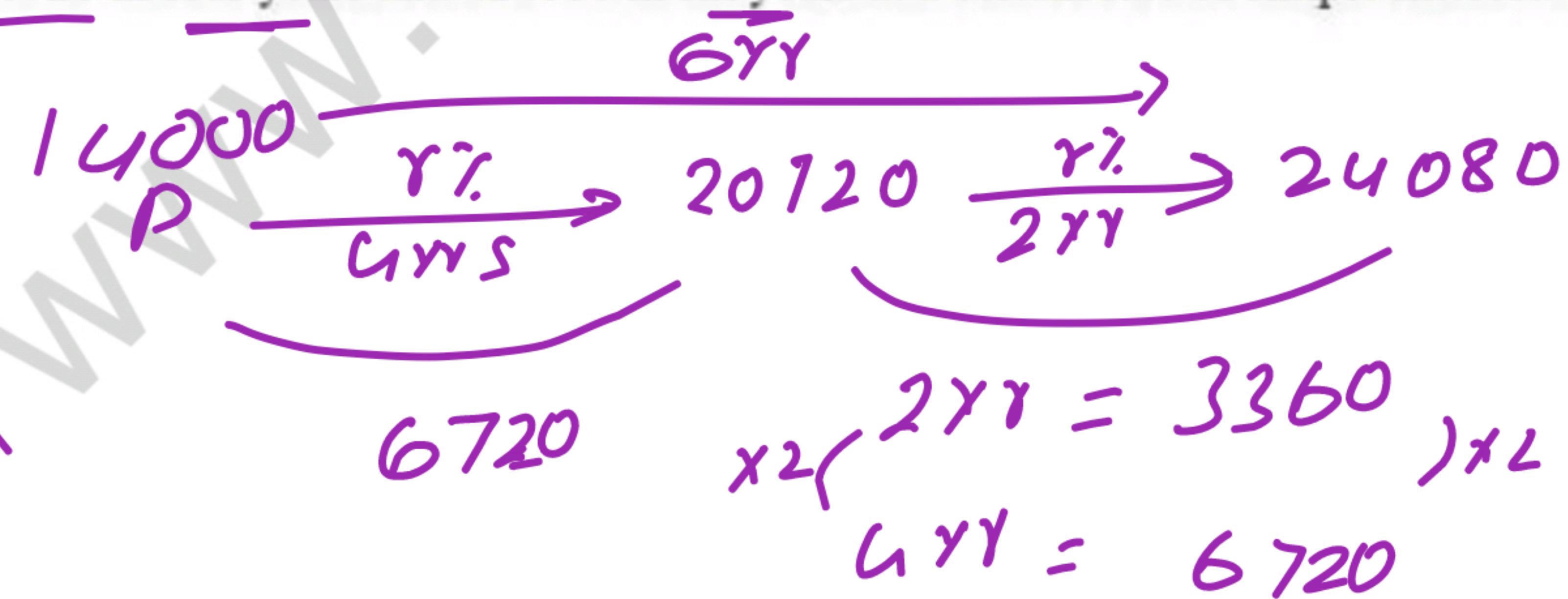


$$\text{II } 3\% = 22.5$$

$$100\% = \frac{22.5}{5 \times 10} \times 100\% = 750$$

A certain sum amounts to ₹20720 in four years and ₹24080 in six years at a certain rate of simple interest. The sum (in ₹) is:

- 1. 11000
- 2. 12000
- 3. 14000
- 4. 15000



$$\begin{array}{r} 24080 \\ 20720 \\ \hline 3360 \end{array}$$

$$\begin{array}{r} 20720 \\ 6720 \\ \hline 14000 \end{array}$$

$$P: 50000 \xrightarrow[1\text{ yr}]{4.6\%} 50000 \times \frac{4.6}{100} = 2300$$

$$\begin{array}{c} 4\% \\ \swarrow \\ 20000 \end{array} \quad \begin{array}{c} 4\% + 1\% \\ \downarrow \\ \text{II} \rightarrow 300.00 \end{array} \quad \begin{array}{c} 4\% \\ \searrow \\ 230 \end{array}$$

$$4\% = 50000 \times \frac{4}{100} = 2000 + \underline{300}$$

$$\begin{array}{l} \text{II } 1\% = 300 \\ 100\% = 30000 \end{array}$$

A sum becomes ₹500 in 5 years and ₹600 in 7 years at a certain rate percent p.a at of simple interest. What is the sum?

- 1. ₹300
- 2. ₹400
- 3. ₹200
- 4. ₹250 ✓

$$\begin{array}{ccccccc} & & & \xrightarrow{7-yrs} & & & \\ \xrightarrow{P} & \xrightarrow{\frac{r\%}{5yrs}} & \xrightarrow{A_1 = 500} & & \xrightarrow{A_2 = 600} & & \\ 250 & & & & & & \\ & & & & 2yrs = 100 & & \\ & & & & SI = 50 & & \\ & & & & 5yrs = 50 \times 5 = 250 & & \end{array}$$

A certain sum of money amounts to ₹ 756 in 2 years and

to ₹ 873 in $3\frac{1}{2}$ years at a certain rate of simple interest.

The rate of interest per annum is

- (a) 10%
- (b) 11%
- (c) 12%
- (d) 13%

$$\begin{array}{ccccc}
 & 600 & & A & \\
 P & \xrightarrow{2\text{yr}} & 156 & \xrightarrow{3\frac{1}{2}\text{yr}} & 873 \\
 & & SI & & \\
 \frac{3}{2} \text{yr} = & 117 & & & \\
 2 \text{yr} = & \frac{117}{3} \times 2 \times 2 & & & \\
 & & & & \\
 & & & & = 156
 \end{array}$$

$$\begin{aligned}
 SI &= \frac{Prt}{100} \\
 13 &= \frac{600 \times r \times 2}{100} \\
 156 &= \frac{600 \times r \times 2}{100}
 \end{aligned}$$

$$r = 13\%$$

$$P = 10000 \xrightarrow{9.2\%} \frac{10000 \times 9.2}{100} = 920$$

↓

8%

$\frac{1}{100}$

$10000 \times \frac{8}{100} = 800$

$8\% + 12\%$

$\frac{1}{100}$

120

$= 800 + 120$

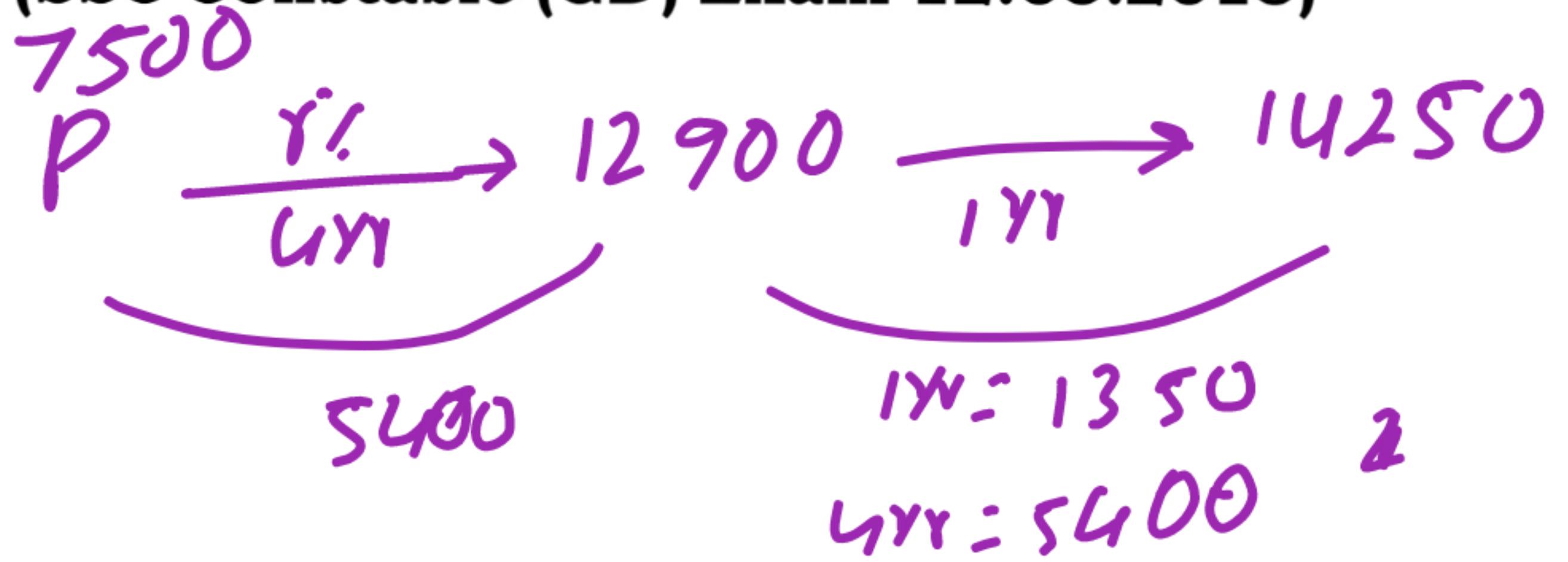
$\boxed{12\%} = 120$

$100\% = \frac{120}{24} \times 100\% = 6000$

If a sum of money amounts to ₹ 12,900 and ₹ 14,250 at the end of 4th year and 5th year respectively at a certain rate of simple interest, then the rate of interest is:

- (a) 10%
- (b) 12%
- (c) 18% 
- (d) 20%

(SSC Constable (GD) Exam 12.05.2013)



$$\begin{aligned} \text{SI} &:= \frac{P \times r}{100} \\ 1080 &= \frac{7500 \times r \times 4}{100} \\ r &= \frac{1080}{7500 \times 4} \\ &= \frac{1080}{30000} \\ &= 0.036 \\ r &= 3.6\% \end{aligned}$$

$$\begin{aligned} &\frac{14250 - 12900}{12900} \\ &= \frac{1350}{12900} \\ &= \frac{5400}{7500} \\ &= 0.072 \\ &= 7.2\% \end{aligned}$$

In simple interest rate per annum a certain sum amounts to ₹ 5,182 in 2 years and ₹ 5,832 in 3 years. The principal in rupees is

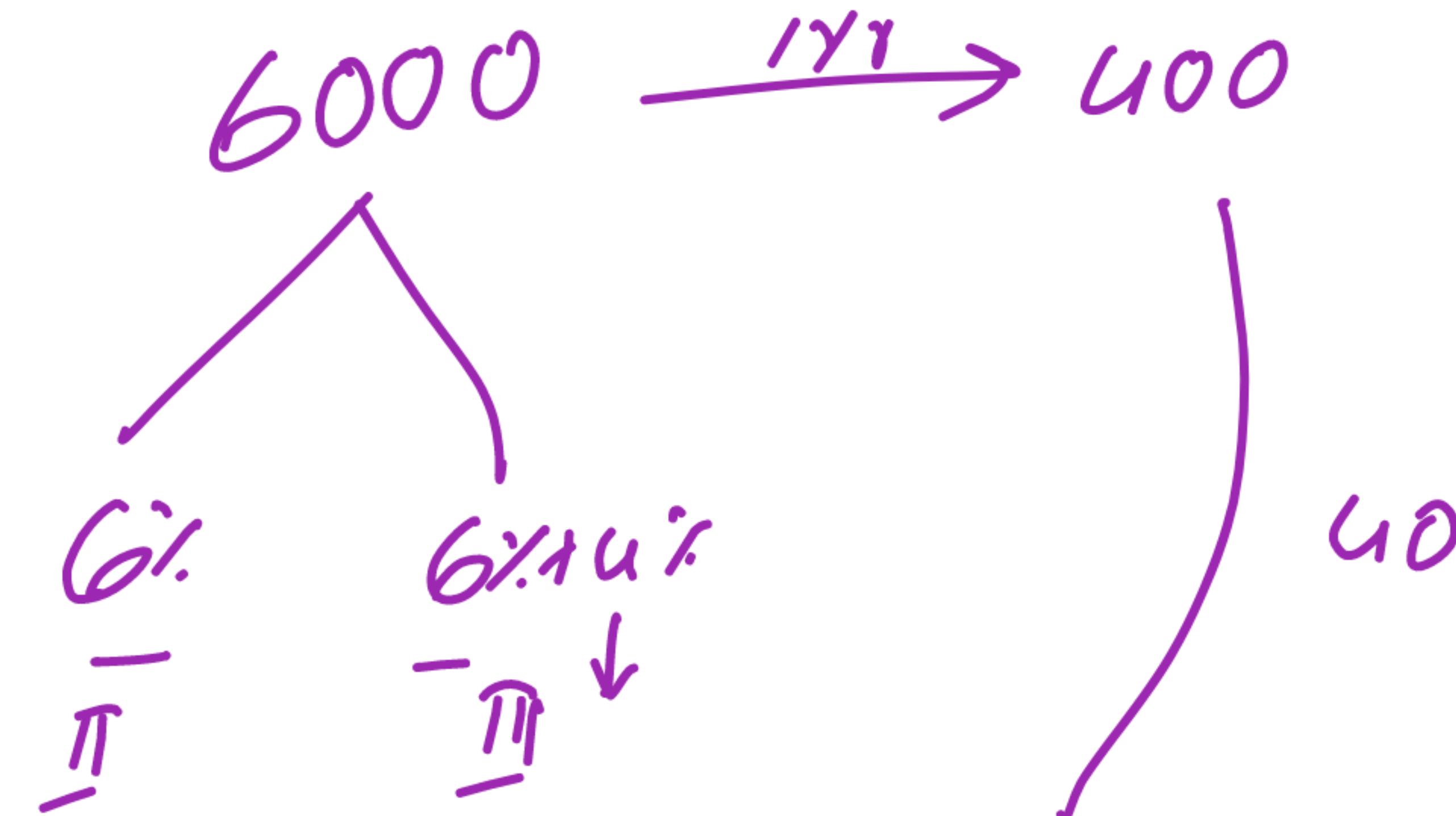
- (a) ₹ 2882
- (b) ₹ 5000
- (c) ₹ 3882
- (d) ₹ 4000

$$\begin{array}{ccccccc}
 & & 3882 & & & & \\
 & P & \xrightarrow{2\text{yr}} & 5182 & \xrightarrow{1\text{yr}} & 5832 & \\
 & & 1300 & & & & \\
 & & & & 1\text{yr: } 650 \times 2 & & \\
 & & & & 2\text{yr: } 1300 & & \\
 \end{array}$$

$$\begin{array}{r}
 5182 \\
 1300 \\
 \hline
 3882
 \end{array}$$

$$\begin{array}{r}
 5832 \\
 5182 \\
 \hline
 650
 \end{array}$$

②



$$6000 \times \frac{6}{100} = 360$$

$$\underline{\text{III}} \quad \frac{4\%}{100\%} = \frac{40}{400} \times 100\% : 1000 \rightarrow$$

A sum of money lent out at simple interest amounts to ₹ 720 after 2 years and ₹ 1020 after a further period of 5 years.

Find the principal.

- (a) ₹ 6000
- (b) ₹ 600
- (c) ₹ 1740
- (d) ₹ 120

$P \xrightarrow{2\text{yr}} 720 \xrightarrow{5\text{yr}} 1020$

$5\text{yr} = 300$
 $1\text{yr} = \frac{300}{5} = 60$

$2\text{yr} = 120$

A sum of ₹ 400 amounts to ₹ 480 in 4 years. What will it amount to if the rate of interest is increased by 2%?

- (a) ₹ 484
- (b) ₹ 560
- (c) ₹ 512
- (d) None of these

$$\begin{array}{ccc}
 P & & A \\
 400 & \xrightarrow[4\text{ yr}]{x\%} & 480 \\
 & & \underline{32} \\
 & & \frac{S_I}{2} \\
 400 & \xrightarrow{2\%} & 8 \\
 & 1\text{ yr} &) \times 4 \\
 & \xrightarrow{2\%} & 32
 \end{array}$$

A sum of ₹ 2,400 amounts to ₹ 3,264 in 4 years at a certain rate of simple interest. If the rate of interest is increased by 1% the same sum in the same time would amount to

- (a) ₹ 3,288
- (b) ₹ 3,312
- (c) ₹ 3,340
- (d) ₹ 3,360

(SSC MTS Exam 24.03.2013)

$$\begin{array}{ccc}
 P & & A \\
 2400 & \xrightarrow[4\text{ yr}]{r\%} & 3264 \\
 & & \underline{96} \\
 & & 3360
 \end{array}$$

$$\begin{array}{ccc}
 2400 & \xrightarrow[4\text{ yr}]{1\%} & 24 \\
 & & \xrightarrow[4\text{ yr}]{1\%} 24 \times 4 = 96
 \end{array}$$

A sum of ₹ 800 amounts to ₹ 920 in 3 years at the simple interest rate. If the the rate is increased by 3% p.a. , what will be the sum amount to in the same period?

- (a) ₹ 992
- (b) ₹ 962
- (c) ₹ 942
- (d) ₹ 982

P	$\xrightarrow{\frac{r\%}{3\text{yr}}}$	A
800	$\xrightarrow{\frac{r\%}{3\text{yr}}}$	920
800	$\xrightarrow{\frac{3\%}{3\text{yr}}}$	$\frac{72}{992}$
		$20 \times 3 = 72$

A certain sum amounts to ₹12096 at 8% p.a. in $5\frac{1}{2}$ years at simple interest. What will be the simple interest on the same sum at 10% p.a. in 8 years?

- 1. ₹6760
- 2. ₹6810
- 3. ₹6680
- 4. ₹6720

$$P \xrightarrow[9\frac{1}{2} \text{ yrs}]{8\%} 12096$$

$$A = P + SI$$

$$A = P + \frac{P \times t}{100}$$

$$12096 = P \left(1 + \frac{8 \times 11}{100 \times 2}\right)$$

$$A = P \left(1 + \frac{rt}{100}\right)$$

$$12096 = P \left(1 + \frac{44}{100}\right) \Rightarrow P = \frac{12096 \times 100}{144} = 8400$$

$$\begin{array}{ccc} P & \xrightarrow[8400]{10\%} & SI ? \\ & & \end{array}$$

$$SI = \frac{8400 \times 10 \times 8}{100}$$

$$SI = 6720$$

84
1008

A sum of ₹9000 amounts to ₹13356 at a certain r percent per annum in $4\frac{2}{5}$ years at simple interest. What will be the simple interest on the same sum at double the rate for $2\frac{1}{3}$ years?

- 1. ₹4640
- 2. ₹4760
- 3. ₹4260
- 4. ₹4620 ✓

$$\begin{array}{c}
 \text{P} = 9000 \\
 r = ? \\
 t = 4\frac{2}{5} \text{ years} \\
 SI = ?
 \end{array}$$

$\frac{SI}{P} = \frac{r \times t}{100}$
 $\frac{4356}{9000} = \frac{r \times 4\frac{2}{5}}{100}$
 $4356 = \frac{9000 \times r \times 22}{100 \times 5}$
 $4356 = \frac{9000 \times r \times 22}{500}$
 $4356 = 18r \times 22$
 $4356 = 396r$
 $r = \frac{4356}{396}$
 $r = 11\frac{1}{3}\%$
 $r = 11\frac{1}{3}\% \quad 2r = 22\frac{2}{3}\%$

$$\begin{array}{c}
 P = 9000 \\
 r = 11\frac{1}{3}\% \\
 t = 2\frac{1}{3} \text{ years} \\
 SI = ?
 \end{array}$$

$\frac{SI}{P} = \frac{r \times t}{100}$
 $\frac{SI}{9000} = \frac{11\frac{1}{3} \times 2\frac{1}{3}}{100}$
 $\frac{SI}{9000} = \frac{\frac{34}{3} \times \frac{7}{3}}{100}$
 $\frac{SI}{9000} = \frac{238}{900}$
 $SI = \frac{238}{900} \times 9000$
 $SI = 238 \times 10$
 $SI = 2380$

$$\begin{array}{r}
 13356 \\
 - 9000 \\
 \hline
 4356
 \end{array}$$

$$\begin{array}{r}
 21 \\
 22 \\
 \hline
 42 \\
 - 4620 \\
 \hline
 4620
 \end{array}$$