Exercise-8.1

1. (i) 75 Paise ÷ 3 Rupees

or 75 P ÷ 300 Paise

$$= \frac{75}{300} = \frac{1}{4}$$

$\therefore$ 75 Paise : ₹ 3 = 1 : 4

(ii) 1 hour 5 minutes : 45 minuts

or 65 minutes : 45 minutes

or $\frac{\cancel{65}^{13}}{\cancel{45}_{9}} = \frac{13}{9}$

$\therefore$ 1 hour 5 minutes : 45 minutes = 13 : 9

(iii) 8 months : 1 year

or 8 months : 12 months

or $\frac{8}{12} = \frac{2}{3}$

$\therefore$ 8 months : 1 year = 2 : 3

(iv) 2kg 250g : 3 kg

or 2250g : 3000g

or $\frac{2250}{3000} = \frac{9}{12} = \frac{3}{4}$

$\therefore$ 2kg 250g : 3kg = 3 : 4

2. (i) $2\frac{1}{3} : 4\frac{1}{5} = \frac{7}{3} : \frac{21}{5}$

LCM of 3 and 5 = 15

$$= \frac{7\times 5, 21\times 3}{15}$$

$$= \frac{35:63}{15}$$

$\therefore$ $2\frac{1}{3} : 4\frac{1}{5} = 35 : 63$

or 5 : 9

(ii) We have, $3.5 : 5\frac{1}{2} = \frac{35}{10} : \frac{11}{2}$

LCM of 10 and 2 = 10

$$= \frac{35:11\times 5}{10}$$

$$= \frac{35:55}{10}$$

$3.5 : 5\frac{1}{2} = 35 : 55$ or $7 : 11$

(iii) We have, $\frac{1}{6} : \frac{1}{8} : \frac{5}{12}$

LCM of 6, 8 and 12 = 48

$$= \frac{1\times 8 : 1\times 6 : 5\times 4}{48}$$

$$= \frac{8:6:20}{48}$$

$$= 8:6:20$$

or $\frac{1}{6} : \frac{1}{8} : \frac{5}{12} = 4 : 3 : 10$

(iv) We have,

$2\frac{1}{2} : 1\frac{1}{6} : 1\frac{3}{4} = \frac{5}{2} : \frac{7}{6} : \frac{7}{4}$

LCM of 2, 6 and 4 = 12

$$= \frac{5\times 6 : 7\times 2 : 7\times 3}{12}$$

$$= \frac{30:14:21}{12}$$

$\therefore$ $2\frac{1}{2} : 1\frac{1}{6} : 1\frac{3}{4} = 30 : 14 : 21$

3. (i) 7 : 12 □ 3 : 5

$$= \frac{7}{12}, \frac{3}{5}$$

$$\frac{7\times 5, 3\times 12}{60} = \frac{35, 36}{60}$$

$\therefore$ 7 : 12 < 3 : 5,

[$\because$ 35 < 36]

(ii) $3\frac{1}{3} : 4\frac{1}{5}$ □ 0.9 : 1

$$= \frac{10}{3} : \frac{21}{5}$$

$$= \frac{10}{3} \times \frac{5}{21}$$

$$= \frac{50}{63}$$

or $0.9 : 1 = \frac{.9}{1} = \frac{9}{10}$

LCM of 63 and 10 is 630

$$\frac{50\times 10; 9\times 63}{630}$$

$$\frac{500\times 567}{630}$$

$\therefore \quad 3\frac{1}{3}:4\frac{1}{5} < 0.9:1 \quad (\because\ 567 > 500)$

(iii) We have, $\frac{1}{2}:\frac{1}{3}\ \square\ \frac{1}{4}:\frac{1}{5}$

$\frac{3:2}{6}$ or $\frac{5:4}{20}$

$\Rightarrow \quad 3:2$ or $5:4$

LCM of 4 and 2 = 4

$$=\frac{3\times 2 \text{ or } 5\times 1}{4}$$

$$=\frac{6 \text{ or } 5}{4}$$

$\therefore \quad \frac{1}{2}:\frac{1}{3} > \frac{1}{4}:\frac{1}{5} \quad \because\ 6 > 5$

(iv) We have, $\frac{1}{8}:\frac{1}{6}\ \square\ 3.5:4.5$

$\frac{3:4}{24}$ or $35:45$

$3:4$ or $7:9$

$\frac{3}{4}$ or $\frac{7}{9}$

LCM of 4 and 9 = 36

$$\frac{3\times 9 \text{ or } 7\times 4}{36}$$

$$\frac{27 \text{ or } 28}{36}$$

$\therefore \quad \frac{1}{8}:\frac{1}{6} < 3.5:4.5$

4. (4 : 5), (6 : 7), (7 : 10) and (11 : 24)

$\frac{4}{5},\frac{6}{7},\frac{7}{10},\frac{11}{24}$

L.C.M of 5, 7, 10 and 24 is 840.

$\frac{4}{5}=\frac{4\times 168}{5\times 168}=\frac{672}{840}$; $\frac{6}{7}=\frac{6\times 120}{7\times 120}=\frac{720}{840}$;

$\frac{7}{10}=\frac{7\times 12}{10\times 12}=\frac{84}{840}$; $\frac{11}{24}=\frac{11\times 35}{24\times 35}=\frac{385}{840}$

$\frac{672}{840},\frac{720}{840},\frac{84}{840},\frac{385}{840}$

So, ascending order =

$$\frac{84}{840}<\frac{385}{840}<\frac{672}{840}<\frac{720}{840}$$

$$\frac{7}{10}<\frac{11}{24}<\frac{4}{5}<\frac{6}{7}$$

Ratio is 7 : 10 < 11 : 24 < 4 : 5 < 6 : 7

(ii) (3 : 10), (7 : 15), 11 : 20 and 21 : 25.

$\frac{3}{10},\frac{7}{15},\frac{11}{20},\frac{21}{25}$

L.C.M of 10, 15, 20 and 25 is 300.

$\frac{3}{10}=\frac{3\times 30}{10\times 30}=\frac{90}{300}$; $\frac{7}{15}=\frac{7\times 20}{15\times 20}=\frac{140}{300}$

$\frac{11}{20}=\frac{11\times 15}{20\times 15}=\frac{165}{300}$; $\frac{21}{25}=\frac{21\times 12}{25\times 12}=\frac{252}{300}$

$\frac{90}{300},\frac{140}{300},\frac{165}{300},\frac{252}{300}$

So, Ascending order =

$$\frac{90}{300}<\frac{140}{300}<\frac{165}{300}<\frac{252}{300}$$

$$\frac{3}{10}<\frac{7}{15}<\frac{11}{20}<\frac{21}{25}$$

Ratio is 3 : 10, 7 : 15, 11 : 20 < 21.25.

5. (i) (17 : 28), (8 : 21), (11 : 14) and (3 : 7) or $\frac{7}{28},\frac{8}{21},\frac{11}{14},\frac{3}{7}$

L.C.M of 28, 21, 14 and 7 is 168.

$\frac{7}{28}=\frac{7\times 6}{28\times 6}=\frac{42}{168}$;

$\frac{8}{21}=\frac{8\times 8}{21\times 8}=\frac{64}{168}$;

$\frac{11}{14}=\frac{11\times 42}{14\times 42}=\frac{462}{168}$;

$\frac{3}{7}=\frac{3\times 24}{7\times 24}=\frac{72}{168}$

So, descending order =

$$\frac{462}{168}>\frac{72}{168}>\frac{64}{168}>\frac{42}{168}$$

or $\frac{11}{14}>\frac{3}{7}>\frac{8}{21}>\frac{7}{28}$

(ii) (9 : 10) ; (11, 15) ; (17 : 20) and 4 : 5 or $\frac{9}{10},\frac{11}{15},\frac{17}{20},\frac{4}{5}$

L.C.M of 10, 15, 20, 5 is 60.

$\frac{9}{10}=\frac{9\times 6}{10\times 6}=\frac{54}{60}$; $\frac{11}{15}=\frac{11\times 4}{15\times 4}=\frac{44}{60}$;

$\frac{17}{20} = \frac{17 \times 3}{20 \times 3} = \frac{51}{60}; \frac{4}{5} = \frac{4 \times 12}{5 \times 12} = \frac{48}{60}$

$\frac{54}{60}, \frac{44}{60}, \frac{51}{60}, \frac{48}{60}$

So, descending order =

$\frac{54}{60} > \frac{51}{60} > \frac{48}{60} > \frac{44}{60}$

or $\frac{9}{10} > \frac{17}{20} > \frac{4}{5} > \frac{11}{15}$

6. Ratio of age 2 : 3 : 4

Sum of Ratio $= 2 + 3 + 4 = 9$

1st child get $= \frac{2}{9} \times 90 =$ ₹ 20

2nd child get $= \frac{3}{9} \times 90 =$ ₹ 30

3rd child get $= \frac{4}{9} \times 90 =$ ₹ 40

7. Given ratio is $1 : \frac{1}{2} : \frac{1}{3}$

or $\frac{6:3:2}{6}$

LCM of 2 and 3 = 6

or 6 : 3 : 2

sum of ratio 6 + 3 + 2 = 11

Ist first $= \frac{6}{11} \times 220 = 6 \times 20 = 120$

IInd part $= \frac{3}{11} \times 220 = 3 \times 20 = 60$

IIIrd part $= \frac{2}{11} \times 220 = 2 \times 20 = 40$

8. Ratio of marks in English

$= \frac{35}{50} = \frac{7}{10} = 7:10$

" " Science $= \frac{29}{40} = 29:40$

$\therefore \frac{7}{10}, \frac{29}{40}$

LCM of 10 and 40 = 40

$= \frac{7 \times 4, 29 \times 1}{40} = \frac{28, 29}{40}$

$\therefore$ 29 : 40 > 7 : 10 $\because$ 29 > 28

$\therefore$ Kajal performed better in Science.

9. Given Ratio $A : B = 7:4, B : C = 5:14$

or $\frac{A}{B} = \frac{7}{4}; \frac{B}{C} = \frac{5}{14}$

Multiply then, $\frac{A}{B} \times \frac{B}{C} = \frac{\cancel{7}}{4} \times \frac{5}{\cancel{14}_{2}}$

$\frac{A}{C} = \frac{5}{8}$ or $A : C = 5:8$

10. Given ratio, $A : C = 2:3, B : C = 5:6$

or $\frac{A}{C} = \frac{2}{3}, \frac{B}{C} = \frac{5}{6}$

or $\frac{A}{C} = \frac{2}{3}, \frac{C}{B} = \frac{6}{5}$

Multiply then $\frac{A}{C} \times \frac{C}{B} = \frac{2}{\cancel{3}} \times \frac{\cancel{6}^{2}}{5}$

$\frac{A}{B} = 4:5$

11. Let the three parts be $5x$, $7x$ and $8x$

given, 1st part = 225

$\therefore$ $5x = 225$

$x = 45$

$\therefore$ 2nd part $= 7x$

$= 7 \times 45$

$=$ ₹ 315

3rd part $= 8x$

$= 8 \times 45$

$=$ ₹ 360

Two parts are ₹ 315 and ₹ 360 and total amount = ₹ 225 + ₹ 315 + ₹ 360

= ₹ 900

12. Let Mohan's share $= 4x$

Sohan's share $= 7x$

Sohan's share = ₹ 595 (given)

$\therefore$ $7x = 595$

$x = 85$

$\therefore$ Mohan's share $= 4 \times 85$

$= 340$

$\therefore$ total amount is = ₹ 340 + ₹ 259

= ₹ 935

13. Let Number of 1 rupee coins $= 3x$

" " 50 paise coins $= 5x$

" " 25 " $= 8x$

$\therefore$ Total value is

$= 3x \times 100 + 5x \times 50 + 8x \times 25$

$= 300x + 250x + 200x$

$= 750x$ paise

$\therefore$ $750x = (135 \times 100)$ paise

$$x = \frac{13500}{750}$$
$$x = 18$$

$\therefore$ No. of 1 rupee coins $= 3 \times 18 = 54$

" 50 paise coins $= 5 \times 18 = 90$

" 25 " " $= 8 \times 18 = 144$

14. Let two numbers be $1x$ and $2x$.

According to the question

$$\frac{1x + 10}{2x + 10} = \frac{2}{3}$$

$\therefore$ $3x + 30 = 4x + 20$ (cross multiply)

$30 - 20 = 4x - 3x$

$10 = x$

$\therefore$ Numbers are $1 \times 10, 2 \times 10$

$= 10, \ 20$

15. Let smaller part $= 3x$

larger part $= 5x$

$\therefore$ $5x = 315$

$$x = \frac{315}{5} \quad \Rightarrow \quad x = 63$$

$\therefore$ smaller part $= 3x$

$= 3 \times 63 =$ ₹ 189

16. Ratio of boys and girls $= 7 : 6$

sum of ratio $= 7 + 6 = 13$

$\therefore$ Numbers of boys $= \frac{7}{13} \times 1430 = 770$

" " girls $= \frac{6}{13} \times 1430 = 660$

Let numbered of new boys admitted be x

$\therefore$ According to given condition

$$\frac{770 + x}{660 + 26} = \frac{8}{7}$$
$$\frac{770 + x}{686} = \frac{8}{7}$$
$$7(770 + x) = 8 \times 686$$
$$5390 + 7x = 5488$$
$$7x = 98$$
$$x = 14$$

$\therefore$ No. of new boys admitted is 14

Exercise-8.2

1. (i) 6,9, 3, 4

Product of extremes $= 6 \times 4 = 24$

" " means $= 9 \times 3 = 27$

$\because$ Product of extremes $\neq$ product of means

$\therefore$ 6,9, 3, 4 are not in proportion.

(ii) 4.8, 2.7, 80, 48

Product of extremes

$= 4.8 \times 4.8 = 230.4$

" " means $= 2.7 \times 80 = 216$

$\because$ Product of extrmes $\neq$ product of means

$\therefore$ 4.8, 2.7, 80,48 are not in proportion.

(iii) $7, 8\frac{1}{2}, 9\frac{1}{3}, 11\frac{1}{3}$ or $7, \frac{17}{2}, \frac{28}{3}, \frac{34}{3}$

Product of extremes $= 7 \times \frac{34}{3} = \frac{238}{3}$

Product of means $= \frac{17}{\cancel{2}} \times \frac{\overset{14}{\cancel{28}}}{3} = \frac{238}{3}$

$\because$ Product of extremes = Product of means

$\therefore$ $7, 8\frac{1}{2}, 9\frac{1}{3}, 11\frac{1}{3}$ are in proportion.

(iv) 0.24, 1.2, 7.5, 37.5

Product of extremes

$= 0.24 \times 37.5 = 9$

" " Means $= 1.2 \times 7.5 = 9$

$\therefore$ Product of extremes = Product of means

$\therefore$ 0.24, 1.2, 7.5 and 37.5 are in proportion.

2. (i) $5 : 3 = x : 6$

$$\frac{5}{3} = \frac{x}{6}$$

Product of means = Product of extremes

$5 \times 6 = 3 \times x$

$\frac{30}{3} = x$

$10 = x$

$\therefore$ $x = 10$

(ii) $8 : x = 16 : 35$

$$\frac{8}{x} = \frac{16}{35}$$

Product of means = Product of extremes

$35 \times 8 = 16 \times x$

$280 = 16x$

$$x = \frac{280}{16} = 17.5$$

3. (i) We have,

$11 : 55 = 9 : x$

$\therefore \quad 11 \times x = 55 \times 9$

$$x = \frac{55 \times 9}{11}$$

$$x = 45$$

$\therefore \quad 11 : 55 = 9 : 45$

(ii) ₹ 15 : ₹ 21 = x : 7 Pencils

$15 \times 7 = 21 \times x$

$$\frac{15 \times 7}{21} = x$$

$$5 = x$$

$\therefore$ ₹ 15 : ₹ 21 = **5 pencils :** 7 pencils

4. (i) Let four the proportion be x.

$\therefore \quad 23 : 115 = 2.7 : x$

Product of means

= Product of extremes

$23 \times x = 2.7 \times 115$

$x = 13.5$

$\therefore$ Fourth proportion is 13.5.

(ii) Let fourth proportion be x.

$\therefore \quad \frac{2}{3} : \frac{4}{7} = 1\frac{5}{6} : x$

$\frac{2}{3} \times x = 1\frac{5}{6} \times \frac{4}{7}$

$\frac{2}{3} x = \frac{11}{6} \times \frac{4}{7}$

$x = \frac{11}{\cancel{6}_{\cancel{3}}} \times \frac{\cancel{4}^{\cancel{2}}}{7} \times \frac{\cancel{3}}{\cancel{2}}$

$x = \frac{11}{7}$

$\therefore$ fourth proportion is $\frac{11}{7}$.

(iii) Let fourth propotion be x.

$\therefore$ ₹ 8 : ₹ 25 = ₹ 44 : ₹ x

Product of means

= Product of extremes

$\therefore \quad 8 \times x = 25 \times 44$

$$x = \frac{25 \times 44}{8}$$

$x =$ ₹ 137.5

$\therefore$ fourth proportion is ₹ 137.5.

(iv) Let fourth proportion be x.

$\therefore$ ₹ 72 : ₹ 168 = $3m : x\,m$

$\therefore \quad 72 \times x = 168 \times 3$

$$x = \frac{168 \times 3}{72}$$

$$x = 7$$

$\therefore$ fourth proportion is 7m.

5. 2.5, 12.5,62.5 will be in continued proportion of

$(12.5)^2 = 2.5 \times 62.5$

$\therefore$	LHS	RHS
	$(12.5)^2$	$= 2.5 \times 62.5$
	156.25	$= 156.25$

Yes 2.5, 12.5, 62.5 are in continued proporion.

6. (i) We have 16, 12

Let third proportion be x.

$\therefore \quad 16 : 12 = 12 : x$

$\Rightarrow \quad 16 \times x = 12 \times 12$

$$x = \frac{12 \times 12}{16}$$

$$x = 9$$

$\therefore$ Third proportion is 9

(ii) We have, 1.2, 2.7

Let third proportion be x.

$\therefore \quad 1.2 : 2.7 = 2.7 : x$

$1.2 \times x = 2.7 \times 2.7$

$$x = \frac{2.7 \times 2.7}{1.2}$$

$$x = 6.075$$

$\therefore$ Third proportion is 6.075.

(iii) We have $3\frac{1}{2}, 8\frac{3}{4}$

Let third proportion be x.

$\therefore \quad 3\frac{1}{2} : 8\frac{3}{4} = 8\frac{3}{4} : x$

Product of means = Product of extremes

$\therefore \quad 3\frac{1}{2} \times x = 8\frac{3}{4} \times 8\frac{3}{4}$

$\frac{7}{2} \times x = \frac{35}{4} \times \frac{35}{4}$

$x = \frac{\cancel{35}^{5} \times 35 \times \cancel{2}}{\cancel{4} \times \cancel{4}_{2} \times 7}$

$x = \frac{5 \times 35}{4 \times 2}$

$$x = \frac{175}{8}$$

$$x = 21\frac{7}{8}$$

$\therefore$ third proportion is $21\frac{7}{8}$.

(iv) Let third proportion be x.

$\therefore$ ₹ 5.40 : ₹ 0.90 = ₹ 0.90 : x

Proportion of means

= Product of extremes

$5.40 \times x = 0.90 \times 0.90$

$$x = \frac{0.90 \times 0.90}{5.40}$$

$x = 0.15$

$\therefore$ fourth proportion is ₹ 0.15 or 15 paise.

7. (i) We have 9 and 16

Let mean proportion be x.

$\therefore$ $9 : x = x : 16$

$\therefore$ $9 \times 16 = x \times x$

$144 = x^2$

$12^2 = x^2$

$\therefore$ $x = 12$

$\therefore$ Mean proportion is 12

(ii) We have 80 and 20.

Let mean proportion be x.

$\therefore$ $80 : x = x : 20$

$\therefore$ $80 \times 20 = x \times x$

$1600 = x^2$

$40^2 = x^2$

$\therefore$ $x = 40$

$\therefore$ Mean proportion is 40.

8. Let x should be subtracted

$\therefore$ $(23 - x) : (40 - x) = (57 - x) : (108 - x)$

$\Rightarrow$ $(23 - x)(108 - x) = (40 - x)(57 - x)$

$2484 - 23x - 108x + x^2$

$= 2280 - 40x - 57x + x^2$

$2484 - 131x = 2280 - 97x$

$-131x + 97x = 2280 - 2484$

$-34x = -204$

$$x = \frac{204}{34}$$

$x = 6$

$\therefore$ 6 should be subtracted from 23,40, 57, 108 to make it in proportion.

9. Let the numbers added be x.

$\therefore$ $(10 + x) : (18 + x) = (22 + x) : (38 + x)$

$(10 + x)(38 + x) = (22 + x)(18 + x)$

$380 + 10x + 38x + x^2$

$= 396 + 22x + 18x + x^2$

$380 + 48x = 396 + 40x$

$48x - 40x = 396 + 40x$

$48x - 40x = 396 - 380$

$8x = 16$

$x = 2$

$\therefore$ 2 should be added.

10. Ria height : Raveena height = 7 : 9

$1.05 : x = 7 : 9$

Product of means = Product of extremes

or $x \times 7 = 9 \times 1.05$

$7x = 9.45$

$x = 1.35$

$\therefore$ height of Raveena is 1m 35 cm.

Exercise-8.3

1. A car travels 165 km in 3 hours.

1 km in $\frac{3}{165}$ hours

" " 440 km $= \frac{3}{165} \times 440$

$\therefore$ car travels 440 km in 8 hours

2. From 250 students fee collected =37500

" 1 " " $= \frac{37500}{250}$

" 62 " $= \frac{37500}{250} \times 62$

$= 150 \times 62$

$\therefore$ From 62 students fee collected ₹ 9300.

3. Cost of 5 rubbers = ₹ 70.50

Cost of 1 rubber= ₹ $\frac{70.50}{5}$ = ₹ 14.1

Total money = ₹ 211.5

Number of rubbers $= \frac{211.5}{14.1} = 15$

So, he can bought 15 rubbers in ₹ 211.5.

Cost of 75 rubbers = ₹ 14.1×75

= ₹ 1057.50

4. 72 notebooks weigh = 8 kg

1 " " $= \frac{8}{72}$ kg

8 " " $= \frac{8}{\cancel{72}_{8}} \times \cancel{8}^{9}$ kg

$= 9$ kg

8 kg of weight is of 72 note books

1 kg " " $= \frac{72}{8}$ note books

6 " " $= \frac{\cancel{72}^{9}}{\cancel{8}} \times 6$ note books

$= 54$ Note books

5. A worker paid ₹ 1110 for 6 days working

" " ₹ 1 " $\frac{6}{1110}$ " "

" " ₹ 4625 " $\frac{6}{1110} \times 4625$ days working

$= 25$ days

A worker paid ₹ 4625 for 25 days of working.

6. A train covers 51 km in 45 minutes

" " 1 " " $\frac{45}{51}$ minutes

" " 221 km " $= \frac{45}{51} \times 221$ minutes

" " 221 km " $= 195$ minutes

or 3 hr 24 minutes

7. For 900 km travelling cost = ₹ 280

" 1 " " = ₹ $\frac{280}{900}$

" 360 " " = ₹ $\frac{280}{900} \times 360$

" " " " = ₹ 112

8. (i) In 15 months clerk earns

= ₹ 180000

In 1 " " = ₹ $\frac{180000}{15}$

" 7 " " $= \frac{180000 \times 7}{15}$

∴ " " " = ₹ 84000

(ii) ₹ 180000 is earned by a clerk in 15 months

₹ 1 " " $= \frac{15}{180000}$ months

₹ 30000 " $= \frac{15}{180000} \times 30000$ months

$= 2.5$

$= 2$ months 15 days

9. 162 gm weight is of 6 sheets

1 gm " " $= \frac{6}{162}$ sheets

13500 gm " " $= \frac{6}{162} \times 13500$ sheets

or 13.5kg " = 500 sheets

10. 44m thickness is of 16 cardboard

1 " " " $\frac{16}{44}$ "

715 mm " " $= \frac{16 \times 715}{44}$ cardboard

∴ 71.5 cm " " = 260 cardboard

11. 16.25m of wall built by 15 men

1 m " " " $= \frac{15}{16.25}$ men

26 m " " $= \frac{15 \times 26}{16.25}$ men

$= \frac{390}{16.25}$ men

∴ 26 metres of wall built by 24 men.

12. Cost of 25 bags of rice weighing 40kg

= ₹ 25000

1 " " " 40 kg " = ₹ $\frac{25000}{25}$

" " " 1 kg = ₹ $\frac{25000}{25 \times 40}$

" 36 "" " 50 kg

= ₹ $\frac{25000 \times 36 \times \cancel{50}^{2}}{25 \times \cancel{40}_{20}}$

= ₹ 45000

36 bags of rice weighing 40kg cost

= ₹ 45000

13. Price of 3 Pencils or 5 rubbes = ₹ 15

" " 1 pencils or 5 rubbers = ₹ $\frac{15}{3}$

" " " 1 rubber $= \frac{15}{3 \times 5}$

" 4 " 3 rubber $= \frac{15}{3 \times 5} \times 4 \times 3$

$\therefore$ Price of 4 Pencils or 3 rubbers = ₹ 12

MCQs

1. (d) **2.** (d) **3.** (b) **4.** (d) **5.** (a) **6.** (d) **7.** (b) **8.** (d)

Mental Maths

1. 1 : 30 **2.** 14 **3.** product of means **4.** yes **5.** 69 : 80 **6.** 3 : 4 **7.** 1 : 3 **8.** $a : b$

9 Percentage and Its Application

Eercise-9.1

1.

Colour	Number	Fraction	Denominator 100	In%
Blue	3	$\frac{3}{10}$	$\frac{30}{100}$	30%
Red	3	$\frac{3}{10}$	$\frac{30}{100}$	30%
Green	4	$\frac{4}{10}$	$\frac{40}{100}$	40%
Total	10	$\frac{10}{10}$	$\frac{100}{100}$	100%

2. (i) $32\% = \frac{32}{100} = \frac{8}{25}$

(ii) $26\frac{2}{3}\% = \frac{80}{3}\%$

$= \frac{80}{300} = \frac{8}{30} = \frac{4}{15}$

(iii) $6\frac{1}{4}\% = \frac{25}{4}\% = \frac{25}{100 \times 4} = \frac{1}{16}$

(iv) $0.5\% = \frac{0.5}{100} = \frac{5}{1000} = \frac{1}{200}$

(v) $1.25\% = \frac{1.25}{100} = \frac{125}{10000} = \frac{1}{80}$

(vi) $120\% = \frac{120}{100} = \frac{12}{10} = \frac{6}{5}$

(vii) $0.75\% = \frac{0.75}{100} = \frac{75}{10000} = \frac{3}{400}$

(viii) $0.05\% = \frac{5}{100}\% = \frac{1}{2000}$

3. (i) $\frac{53}{100} = \frac{53}{100} \times 100\% = 53\%$

(ii) $\frac{3}{8} = \frac{3}{\cancel{8}_{2}} \times \cancel{100}^{25}\% = \frac{3 \times 25}{2}$

$= \frac{75}{2}\% = 37\frac{1}{2}\%$

(iii) $\frac{5}{7} = \frac{5}{7} \times 100\% = \frac{500}{7}\% = 71\frac{3}{7}\%$

(iv) $\frac{23}{40} = \frac{23}{40} \times 100\% = \frac{23 \times 10}{4}$

$= \frac{230}{4}\% = 57\frac{1}{2}\%$

(v) $\frac{7}{20} = \frac{7}{20} \times 100\% = (7 \times 5)\% = 35\%$

(vi) $\frac{19}{500} = \frac{19}{500} \times 100\% = \frac{19}{5}\% = 3\frac{4}{5}\%$

(vii) $1\frac{3}{5} = \frac{8}{5} = \frac{8}{5} \times 100\%$

$= 8 \times 20\% = 160\%$

(viii) $1\frac{7}{8} = \frac{15}{8} = \frac{15}{\cancel{8}_{2}} \times \cancel{100}^{25}\%$

$= \frac{15}{2} \times 25\% = \frac{375}{2}\% = 187\frac{1}{2}\%$

4. (i) $26\% = \frac{26}{100} = \frac{13}{50} = 13 : 50$

(ii) $13\frac{3}{4}\% = \frac{55}{4}\% = \frac{55}{4 \times 100}$

$= \frac{11}{4 \times 20} = \frac{11}{80} = 11 : 80$

(iii) $135\% = \frac{135}{100} = \frac{27}{20} = 27 : 20$

(iv) $5.5\% = \frac{5.5}{100} = \frac{55}{100} = \frac{11}{200} = 11 : 200$

(v) $2.5\% = \frac{2.5}{100} = \frac{25}{1000} = \frac{1}{40} = 1 : 40$

(vi) $0.4\% = \frac{0.4}{100} = \frac{4}{1000} = \frac{1}{250} = 1 : 250$

(vii) $0.65\% = \frac{0.65}{100} = \frac{65}{10000}$

$= \frac{13}{2000} = 13 : 2000$

(viii) $22\% = \frac{22}{100} = \frac{11}{50} = 11:50$

5. (i) $2:5 = \frac{2}{\cancel{5}} \times \overset{20}{\cancel{100}}\% = 40\%$

(ii) $3:2 = \frac{3}{2} \times 100\% = \frac{50 \times 3}{3}\% = 150\%$

(iii) $7:5 = \frac{7}{5} \times 100\% = 7 \times 20\% = 140\%$

(iv) $4:25 = \frac{4}{\cancel{25}} \times \overset{4}{\cancel{100}}\% = 16\%$

6. (i) $75\% = \frac{75}{100} = 0.75$

(ii) $7.5\% = \frac{7.5}{100} = 0.075$

(iii) $13\frac{1}{2}\% = 13.5\% = \frac{13.5}{100} = 0.135$

(iv) $0.2\% = \frac{0.2}{100} = 0.002$

(v) $0.05 = \frac{0.05}{100} = 0.0005$

(vi) $\frac{1}{4}\% = 0.25\% = \frac{0.25}{100} = 0.0025$

7. (i) $0.4 = 0.4 \times 100\% = 40\%$

(ii) $0.24 = 0.24 \times 100\% = 24\%$

(iii) $0.02 = 0.02 \times 100\% = 2\%$

(iv) $0.275 = 0.275 \times 100\% = 27.5\%$

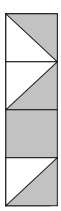
(v) $0.063 = 0.063 \times 100\% = 6.3\%$

(vi) $1.2 = 1.2 \times 100\% = 120\%$

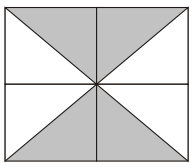
(vii) $2.05 = 2.05 \times 100\% = 205\%$

(viii) $0.002 = 0.002 \times 100\% = 0.2\%$

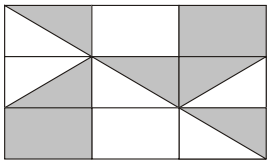
8. (i) Number of boxes = 8
shaded box = 5
percentage percentage of
shaded box $= \frac{5}{8} \times 100$
$= 62.5\%$



(ii) Number of boxes = 8
shaded box = 4
Percentage of
shaded box
$= \frac{4}{8} \times 100$
$= 50\%$



(iii) Number of boxes = 18
shared boxes = 7



percentage of shaded box
$= \frac{9}{18} \times 100 = 50\%$

Exercise-9.2

1. (i) 60% of $55 = \frac{\overset{3}{\cancel{60}}}{\underset{20}{\cancel{100}}} \times \overset{11}{\cancel{55}} = 3 \times 11$

$\therefore$ 60% of $55 = 33$

(ii) 20% of ₹ $150 =$ ₹ $\frac{20}{100} \times 150 =$ ₹ 30

(iii) 90% of $130 = \frac{90}{100} \times 130 = 117$

(iv) 70% of 500
$= \frac{70}{100} \times 500 = 350$

(v) $2\frac{1}{2}\%$ of $30 = \frac{5}{2}\%$ of 30
$= \frac{5}{2 \times 100} \times 30$
$= \frac{3}{4} = 0.75$

$\therefore$ $2\frac{1}{2}\%$ of $30 = 0.75$

(vi) $3\frac{1}{2}\%$ of 1600
$= \frac{7}{2}\%$ of 1600
$= \frac{7}{\cancel{2} \times \cancel{100}} \times \overset{8}{\cancel{1600}} = 7 \times 8 = 56$

(vii) 15.5% of ₹ $3000 =$ ₹ $\frac{15.5}{100} \times 3000$
$=$ ₹ $15.5 \times 300 =$ ₹ 465

$\therefore$ 15.5% of ₹ $3000 =$ ₹ 465

(viii) 75% of $2\text{kg} = \frac{75}{100} \times 2000\,\text{gm}$
$= 1500\,\text{gm}$

$\therefore$ 75% of $2\text{kg} = 1.5$ kg

(ix) 32% of 1.5 litres
$= \frac{32}{100} \times 1.5 \times 1000$ ml

$= 32 \times 1.5 \times 10$ ml

$= 480$ ml

$\therefore$ 32% of 1.5 lit $= 480$ ml

(x) 40% of $1\frac{1}{2}$ hours

$= \frac{40}{100} \times 90$ minutes $= 36$ minutes

$\therefore$ 40% of $1\frac{1}{2}$ hours $= 36$ minutes

(xi) $10\frac{1}{2}$% of 12m $= 10.5$% of 12km

$= \frac{10.5}{100} \times 12000$ m

$= 1260$ m

$\therefore$ $10\frac{1}{2}$% of 12 km $= 1.260$ km

(xii) 250% of ₹ 18 = ₹ $\frac{250}{100} \times 18$

= ₹ 45

2. (i) Let x% of $32 = 80$

$\therefore$ $\frac{x}{100} \times 32 = 80$

$$x = \frac{\overset{10}{\cancel{80}} \times \overset{25}{\cancel{100}}}{\underset{4}{\cancel{32}}}$$

$x = 250$%

$\therefore$ 250% of $32 = 80$

(ii) Let x% of ₹ 215 = ₹ 750

$\frac{x}{100} \times 125 = 750$

$$x = \frac{\overset{6}{\cancel{750}} \times 100}{\cancel{125}}$$

$x = 600$%

$\therefore$ 600 % of ₹ 125 = ₹ 750

(iii) Let x% of $3\frac{1}{2}$ kg $= 25$ kg

$\therefore$ $\frac{x}{100} \times 3\frac{1}{2} = 25$

$\frac{x}{100} \times \frac{7}{2} = 25$

$x = \frac{25 \times 100 \times 2}{7}$

$x = \frac{5000}{7} = 714\frac{2}{7}$%

$\therefore$ $714\frac{2}{7}$% of $3\frac{1}{2}$ kg $= 25$ kg

(iv) Let x% of 420g $= 2.25$ kg

$\therefore$ $\frac{x}{100} \times 420 = 2250$ g

$x = \frac{2250 \times 100}{420}$%

$x = 535.75$%

$\therefore$ 535.75% of 420g $= 2.25$ kg

(v) Let x% of 1.5km $= 360$ m

$\frac{x}{100} \times 1500$ m $= 360$ m

$x = \frac{360 \times 100}{1500}$

$x = 24$

$\therefore$ 24% of 1.5 km $= 360$ m

(vi) Let x% of 8 hours $= 3$ days

$\therefore$ $\frac{x}{100} \times 8$ hours $= 72$ hours

$x = \frac{72 \times 100}{8}$

$x = 900$

$\therefore$ 900% of 8 hours $= 3$ days

3. (i) Reduction $= (6 - 5.4)$ kg

$= 0.6$ kg

Reduction % $= \frac{\text{Reduction}}{\text{Original}} \times 100$

$= \frac{0.6}{6} \times 100$

Reduction % $= 10$%

(ii) Reduction $= (12 - 10)$ hours

$= 2$ hours

Reduction % $= \frac{\text{Reduction}}{\text{Original}} \times 100$

$= \frac{2}{\underset{3}{\cancel{12}}} \times \overset{50}{\cancel{100}} = \frac{50}{3}$

$= 16\frac{2}{3}$%

(iii) Reduction= ₹ 40 – ₹ 32 = ₹ 8

Reduction% $= \frac{\text{Reduction} \times 100}{\text{original}}$

$= \frac{\overset{2}{\cancel{80}}}{\cancel{40}} \times \overset{20}{\cancel{100}} = 20$%

4. (i) Increase = ₹ (50 – 40) = ₹ 10

$\therefore$ Increase % $= \frac{\text{Increase}}{\text{Original}} \times 100$

$$= \frac{10}{40} \times 100 = 25\%$$

$\therefore$ Increase % = 25%

(ii) Increase = (81 − 72) = 9 Marks

$$\text{Increase \%} = \frac{\text{Increase}}{\text{Original}} \times 100$$

$$= \frac{\cancel{9}}{\underset{8}{\cancel{72}}} \times 100$$

$$= \frac{100}{8} = \frac{25}{2} = 12\frac{1}{2}\%$$

$\therefore$ Increase % $= 12\frac{1}{2}\%$

(iii) Increase (12 − 10) months

= 2 months

$$\text{Increase \%} = \frac{\text{Increase}}{\text{Original}} \times 100$$

$$= \left(\frac{2}{10} \times 100\right)$$

$\therefore$ Increase % = 20%

5. % of marks secured by Sandhya

$$= \frac{630}{900} \times 100 = 70\%$$

% of Marks secured by Monika

$$= \frac{650 \times 100}{1300} = 50\%$$

$\therefore$ Performance of Sandhya is better.

6. % of books sold $= \frac{\text{Sold books}}{\text{total}} \times 100$

$$= \frac{2640}{12000} \times 100$$

books sold = 22%

7. Let students appeared in exams = x

students passed = 95%

$\therefore$ " " failed = (100 − 95)%

= 5%

$\therefore$ 5% of $x = 60$

$$\frac{5}{100} \times x = 60$$

$$x = \frac{60 \times \overset{20}{\cancel{100}}}{\cancel{5}}$$

$$x = 1200$$

$\therefore$ 1200 students appeared in exam.

8. Let Rahul have ₹ x

$\therefore$ 10% of x = ₹ 15

$$\frac{10x}{100} = 15$$

$$x = \frac{5 \times 100}{10}$$

x = ₹ 150

$\therefore$ Rahul have ₹ 150 before he purchased pencil box.

9. Marks got in maths = 80% of 150

$$= \frac{80}{100} \times 150$$

Marks in maths = 120

Marks got in English

= 70% of marks in Maths

= 70% of 120

$$= \frac{70}{100} \times 120$$

= 84

Marks got in Hindi

= 75% of Marks in English

$$= \frac{75}{100} \times 84 = 63$$

Marks in Maths = 120

Marks in English = 84

Marks in Hindi = 63

10. % of male workers

= (100 − 25)% = 75%

Let total workers be x.

$\therefore$ 75% of $x = 360$

$$\frac{75}{100} \times x = 360$$

$$x = \frac{360 \times 100}{75}$$

$$x = 480$$

$\therefore$ Totoal workers in factory = 480

11. Donated to trust = 15% of 1,20,000

$$= \frac{15}{100} \times 1{,}20{,}000$$

Amount donated to trust = ₹ 18,000

$\therefore$ remainng amount = 120000 − 18000

= 1,02,000

Amount received by her each daughter and son

$$= \frac{102000}{3} = ₹\ 34000$$

12. Decrease in the price of computer

= 55000 − 52800 = ₹ 2200

$\therefore$ Decrease % $= \dfrac{\text{Decrease}}{\text{original}} \times 100$

$= \dfrac{2200}{55000} \times 100 = 4\,\%$

$\therefore$ Decrease % $= 4\,\%$

13. Clerk's present salary = ₹ 1519.50

Let clerk salary before increment = ₹ x

increased salary = 7%

Now, salary = ₹ $x + x \times \dfrac{7}{100}$ = ₹ $\dfrac{107x}{100}$

According to question

Clerk present salary = ₹ 1519.40

= ₹ $\dfrac{107x}{100}$

$\therefore$ ₹ $\dfrac{107x}{100} = 1519.40$

$x =$ ₹ $\dfrac{1519.40 \times 100}{107}$ = ₹ 1420

14. Total number of voters = 6000

Votes were polled $= 6000 \times \dfrac{80}{100} = 4800$

A's votes = 60% of 4800 = 2880

B's votes = 4800 − 2880 = 1920

15. Quantity of Alloy = 640 g

Copper in an alloy = 30%

Nickel in an alloy = 45%

Zinc an alloy = (100 − 30 − 45)% = 25%

Quantity of zinc in an alloy

$= 640 \times 25\%$

$= \dfrac{640 \times 25}{100} = 160$ g

Exercise-9.3

1.

	C.P.	S.P.	Profit	Loss	Profit or Loss%
(i)	₹ 700	₹ 650	—	₹ 50	$7\frac{1}{7}\%$
(ii)	₹ 500	₹ 525	₹ 25	—	5%
(iii)	₹ 480	₹ 440	—	₹ 40	$8\frac{1}{3}\%$
(iv)	₹ 700	₹ 770	₹ 70	—	10%
(v)	₹ 900	₹ 840	—	₹ 60	$6\frac{2}{3}\%$

2. CP of tricycle = ₹ 560

SP of tricycle = ₹ 630

$\therefore$ gain on tricycle = ₹ (630 − 560)

= ₹ 70

$\therefore$ g % on tricycle $= \dfrac{g}{CP} \times 100$

$= \dfrac{70}{560} \times 100$

$= \dfrac{\cancel{100}^{25}}{\cancel{8}_{2}} = 12\frac{1}{2}\%$

3. CP of an article = ₹ 400

SP " " = ₹ 336

$\therefore$ loss on " " = ₹ (400 − 336) = ₹ 64

$\therefore$ loss% on article $= \dfrac{\text{loss}}{CP} \times 100$

$= \dfrac{64}{400} \times 100$

$\therefore$ loss on article = 16%

4. Total CP of Radio = ₹ (5863 + 137)

= ₹ 6000

SP of Radio = ₹ 5700

$\therefore$ loss on Radio = 6000 − 5700

= ₹ 300

loss % on Radio $= \dfrac{300}{6000} \times 100$

= 5%

5. Let CP of 6 toffees = 1

$\therefore$ CP of 1 toffee $= \dfrac{1}{6}$

$\therefore$ SP of 4 toffees = 1

$\therefore$ SP of 1 toffee $= \dfrac{1}{4}$

gain $= SP - CP$

$= \dfrac{1}{4} - \dfrac{1}{6} = \dfrac{3-2}{12} = \dfrac{1}{12}$

gain % $= \dfrac{g}{CP} \times 100$

$= \dfrac{\frac{1}{12}}{1/6} \times 100$

$= \dfrac{1}{\cancel{12}_{2}} \times \dfrac{\cancel{6}}{1} \times 100$

$= 50\%$

6. Let SP of 20 pens $= 1$

$\therefore$ " " 1pen $= \frac{1}{20}$

$\therefore$ CP of 15 pens $= 1$

$\therefore$ " " 1 pen $= \frac{1}{15}$

$\therefore$ loss $= CP - SP$

$= \frac{1}{15} - \frac{1}{20} = \frac{4-3}{60}$

loss $= \frac{1}{60}$

$\therefore$ loss % $= \frac{\frac{1}{60}}{1/15} \times 100$

$= \frac{1}{\cancel{60}_{4}} \times \frac{\cancel{15}}{1} \times 100$

$\therefore$ loss % $= 25\%$

7. Ttoal CP of Almirah $=$ ₹ $(2465 + 35)$

$=$ ₹ 2500

gain % $= 16\%$

$\therefore$ SP of almirah $= \left(\frac{100+16}{100}\right) \times 2500$

$\left[\because \; SP = \left(\frac{100+g\,\%}{100}\right) \times CP\right]$

$= \frac{116}{100} \times 2500$

$\therefore$ SP of almirah= ₹ 2900

8. We have SP of rickshaw $=$ ₹ 2640

loss $= 12\%$

$\therefore$ CP of rickshaw $= \frac{2640 \times 100}{(100-12)}$

$\left[\because \; CP = \frac{SP \times 100}{100 - l\,\%}\right]$

$= \frac{264000}{88} =$ ₹ 3000

Now to get 12% gain

$SP = \left(\frac{100+g\%}{100}\right) CP$

$= \left(\frac{100+12}{100}\right) \times 3000$

$= 112 \times 30$

$\therefore$ SP of rickshaw $=$ ₹ 3360 to get 12%.

9. Let $CP = x, SP =$ ₹ 322

$\therefore$ gain % $= \frac{x}{6}$

$g\,\% = \frac{g}{CP} \times 100$

$= \frac{\frac{x}{6}}{x} \times 100$

$= \frac{100}{6} = \frac{50}{3}$

$g\,\% = 16\frac{2}{3}\%$

10. C.P. of 11 pencils $=$ ₹ 10

C.P. of 1 pencil $=$ ₹ $\frac{10}{11}$

Now S.P. of 10 pencils $=$ ₹ 11

" " 1 pencil $=$ ₹ $\frac{11}{10}$

Profit $=$ S.P. $-$ C.P.

$= \frac{11}{10} - \frac{10}{11}$

$= \frac{121-100}{110} = \frac{21}{10}$

[LCM of 10 and $11 = 110$]

Profit % $= \frac{\frac{21}{110}}{\frac{10}{11}} \times 100$

$= \frac{21}{110} \times \frac{11}{10} \times 100$

$\therefore$ Profit $= 21\%$

11. C.P. of 50 pencils $=$ ₹ 80

$\therefore$ " pencils $=$ ₹ $\frac{80}{50} =$ ₹ $\frac{8}{5}$

Now S.P. of 40 pencils $=$ ₹ 90

S.P. of 1 pencil= ₹ $\frac{90}{40} =$ ₹ $\frac{9}{4}$

Profit $=$ S.P. $-$ C.P.

$= \frac{9}{4} - \frac{8}{5} = \frac{45-32}{20}$

[$\because$ LCM of4 and $5 = 20$]

$= \frac{13}{20}$

$$\text{Profit \%} = \frac{P}{\text{C.P.}} \times 100 = \frac{\frac{13}{20}}{\frac{8}{5}} \times 100$$

$$= \frac{13}{\cancel{20}} \times \frac{5}{8} \times \overset{5}{\cancel{100}}$$

$$= \frac{325}{8}$$

$$\text{Profit \%} = 40\frac{5}{8}\%$$

12. 2400 pens = 200 dozens

C.P. of 2400 pens $= \frac{2400}{12} \times 15$

(200 dozens) $= 200 \times 15$

C.P. of 2400 pens = ₹ 3000

I Case

S.P. of 5 pens = ₹ 8

" " 1 pen $= \frac{8}{5}$

" " 1050 pens $= \frac{8}{5} \times 1050$

$= 8 \times 210 =$ ₹ 1680

IIn Case

S.P.of 1 pen = ₹ 2

∴ SP of remaining $= 2 \times 1350$

1350 Pens = ₹ 2700

∴ Total S.P. = 2700

+ 1680

4380

Total C.P. = 3000

Profit = 4380 − 3000 = 1380

$$\text{Profit\%} = \frac{1380}{3000} \times 100 = 46\%$$

Exercise-9.4

1.

S. No.	Principal in ₹	Rate p.a. (R)	Time (T) Year	Interest ₹ (I)	Amount ₹ (A)
(i)	700	6%	2	84	784
(ii)	1000	8%	3	240	1240
(iii)	10000	15%	2	3000	13000

2. (i) Amount = ₹ 4637.50,

S.I. = ₹ 1137.50

Principal = Amount − S.I.

= ₹ (4637.50 − 1137.50)

= ₹ 3500

(ii) Amount = ₹ 10000, S.I = ₹ 3750

Principal = Amount − S.I

= ₹ (10000 − 3750)

= ₹ 6250.

3. Money borrowed (Principal) = ₹ 6000

rate = 12%

Time = 3 year 8 months

$= 3\frac{8}{12}$ year $= 3\frac{2}{3}$ years

Time $= \frac{11}{3}$ years

Interest Charged $= \frac{6000 \times 12 \times 11}{100 \times 3}$

= ₹ 2640

∴ Amount of clear off the debt

= ₹ (6000 + 2640)

= ₹ 8640

4. We have, S.I. = ₹ 829.50, $r = 10\%$,

time = 3 years

$$\text{S.I.} = \frac{p \times r \times t}{100}$$

$$829.50 = \frac{p \times 10 \times 3}{100}$$

$$\frac{82950}{10 \times 3} = p$$

$$2765 = p$$

∴ sum = ₹ 2765

5. We have rate = 11%, time $= 2\frac{3}{12}$ years

$= 2\frac{1}{4}$ years $= \frac{9}{4}$ years

Amount = ₹ 4491

Let Principal $= x$

∴ S.I. $= 4491 - x$

$$\text{S.I.} = \frac{p \times r \times t}{100}$$

$$(4491 - x) = \frac{x \times 11 \times 9}{100 \times 4}$$

$$400(4491 - x) = 99x$$

$$1796400 - 400x = 99x$$

$$1796400 = 499x$$

₹ $3600 = x$

∴ Now principal = ₹ 3600

Now, $\text{S.I.} = \dfrac{p \times r \times t}{100}$

$= \dfrac{3600 \times 11 \times 3}{100}$

$\text{S.I.} = 1188$

$\therefore$ ₹ 3600 Amounts to ₹ (3600) + 1188) = ₹ 4788 in 3 years.

6. We have,

$P =$ ₹ 3600, $A =$ ₹ 4734

$t = 3\frac{1}{2}$ years $= \frac{7}{2}$ years

$\therefore$ $\text{S.I.} = 4734 - 3600$

$=$ ₹ 1134

$\therefore$ $\text{S.I.} = \dfrac{P \times R \times T}{100}$

$1134 = \dfrac{3600 \times R \times 7/2}{100}$

$\dfrac{1134 \times 100 \times 2}{36000 \times 7} = R$

$9 = R$

$\therefore$ at 9% rate ₹ 3600 amounts to ₹ 4734 in $3\frac{1}{2}$ years.

7. We have,

$P =$ ₹ 5600, $A =$ ₹ 6720, $R = 8\%$ pa

$\therefore$ $\text{S.I.} = 6720 - 5600 =$ ₹ 1120

Now, $\text{S.I.} = \dfrac{P \times R \times t}{100}$

$1120 = \dfrac{5600 \times 8 \times t}{100}$

$\dfrac{1120 \times 100}{5600 \times 8} = t$

$\dfrac{20}{8} = t \Rightarrow \dfrac{5}{2} = t$

$2\frac{1}{2}$ years $= t$

$\therefore$ In $2\frac{1}{2}$ years ₹ 5600 amounts to ₹ 6720 at 8% pa.

8. Let principal $= x$

$\therefore$ Amount $= \frac{8}{5}x$

$\text{S.I.} = \frac{8}{5}x - x = \frac{3x}{5}$

$\therefore$ $\text{S.I.} = \dfrac{p \times r \times t}{100}$

$\dfrac{3x}{5} = \dfrac{x \times r \times 5}{100}$

$\dfrac{3x \times 100}{5 \times x \times 5} = r$

$12\% = r$

$\therefore$ At 12% sum becomes $\frac{8}{5}$ of itself in 5 years.

9. Vibha borrowed = ₹ 430,

Rate = 12%,

Time $= \frac{219}{365}$ years

$\therefore$ $\text{S.I.} = \dfrac{P \times R \times T}{100}$

$= \dfrac{430 \times 12 \times 219}{100 \times 365}$

$\text{S.I.} =$ ₹ 30.96

Amount paid by Vibha = ₹ (430 + 30.96)

= ₹ 460.96

10. Amount borrowed (Principal) = ₹ 8400

Rate $= \frac{25}{2}\%$

Time = Jan + Feb + March + April + May + June

$= 21 + 28 + 31 + 30 + 31 + 4$

$= 145$ days

$\therefore$ Interest $= \dfrac{8400 \times 25 \times 145}{100 \times 2 \times 365}$

= ₹ 420

Amount paid by Mr. Verma

= ₹ (8400 + 420)

= ₹ 8820

11. Let $P = x$

$\therefore$ $A = 2x$

$\therefore$ $\text{S.I.} = A - P$

$= 2x - x = x$

$\because$ $\text{S.I.} = \dfrac{p \times r \times t}{100}$

$x = \dfrac{x \times 10 \times t}{100}$

$\dfrac{100x}{10x} = t$

$\Rightarrow$ 10 years $= t$

$\therefore$ In 10 years a sum of money double itself at 10% S.I.