Ratio and Proportion

EXERCISE : 6.1

1.

i) Given ratio $= \frac{1}{6} : \frac{1}{9} = \frac{1/6}{1/9} = \frac{1}{6} \times 9$

$= \frac{3}{2}$

$= 3 : 2$

ii) Given ratio $= 4\frac{1}{2} : 1\frac{1}{8}$

$= \frac{9}{2} : \frac{9}{8} = \frac{9/2}{9/8}$

$= \frac{9}{2} \times \frac{8}{9}^{4}$

$= 4 : 1$

iii) $\frac{1}{5} : \frac{1}{10} : \frac{1}{15}$

LCM of 5, 10, 15 is 30.

$5 \overline{)5, 10, 15}$

$1, 2, 3$

$5 \times 2 \times 3 = 30$

$= \frac{1}{5} \times 30 : \frac{1}{10} \times 30 : \frac{1}{15} \times 30$

$= 6 : 3 : 2$

2

i) ₹ 5 to 50 paise

$= \frac{5 \times 100 \text{ paise}}{50 \text{ paise}}$

$= \frac{50}{5} = 10 : 1$

ii. 3 km to 300 m

$= \frac{3 \times 1000 \text{ m}}{300}$

$= \frac{3000}{300}$

$= 10 : 1$

iii) 9m to 27 Cm

$= \frac{9 \times 100 \text{ Cm}}{27}$

$= \frac{900^{100}}{27_{3}}$

$= 100 : 3$

iv) 15 kg to 210 g

$= \frac{15 \times 1000 \text{ g}}{210}$

$= \frac{15000^{500}}{21_{7}}$

$= 500 : 7$

v) 25 minutes to 1.5 hour

$= \frac{25 \text{ minutes}}{1.5 \times 60 \text{ minutes}}$

$= {}^{5}\frac{25}{90_{18}} = 5 : 18$

vi) 30 days to 36 hours

$$= \frac{\overset{5}{\cancel{30}} \times \overset{4}{\cancel{24}} \text{ hours}}{\underset{\cancel{6}\,1}{\cancel{36}} \text{ hours}}$$

$= 20 : 1$

3. $A : B = 3 : 4$; $B : C = 8 : 9$

$\frac{A}{B} = \frac{3}{4}$; $\frac{B}{C} = \frac{8}{9}$.

Now $\frac{A}{C} = \frac{A}{B} \times \frac{B}{C} = \frac{\cancel{3}^{1}}{\cancel{4}_{1}} \times \frac{\cancel{8}^{2}}{\cancel{9}_{3}}$

$A : C = 2 : 3$

4. $A : B = 5 : 8$, Value of $B = 8$

$B : C = 18 : 25$, value of $B = 18$

LCM of these two value of B i.e 8 and 18 is 72.

Thus,

$A : B = 5 : 8 = \frac{5}{8} = \frac{5 \times 9}{8 \times 9} = \frac{45}{72} = 45 : 72$ and

$B : C = 18 : 25 = \frac{18}{25} = \frac{18 \times 4}{25 \times 4} = \frac{72}{100} = 72 : 100$

$A : B : C = 45 : 72 : 100$.

5. Let $3A = 2B = 5C = K$ (say), then

$$A = \frac{K}{3}, \quad B = \frac{K}{2}, \quad C = \frac{K}{5}.$$

$$\therefore A : B : C = \frac{K}{3} : \frac{K}{2} : \frac{K}{5}$$

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

Lcm of 3, 2, 5 is 30

$$= \frac{1}{3} \times 30 : \frac{1}{2} \times 30 : \frac{1}{5} \times 30$$

Hence, $A : B : C = 10 : 15 : 6$

6. Given Income = ₹120

Spendings = ₹90

Savings = Income − Spendings

= 120 − 90

= ₹30.

i) $\frac{\text{Spending}}{\text{Income}} = \frac{90}{120} = \frac{9}{12} = 3 : 4$

ii) $\frac{\text{Savings}}{\text{Income}} = \frac{30}{120} = \frac{1}{4} = 1 : 4$

iii) $\frac{\text{Savings}}{\text{Spendings}} = \frac{30}{90} = \frac{1}{3} = 1 : 3$.

7. An Alloy Contains = 5 grams.

out of which Copper was = $3\frac{3}{4}$ grams

$= \frac{15}{4}$ grams

Now Nickel Contains = $5 - \frac{15}{4}$

$= \frac{20 - 15}{4}$

$= \frac{5}{4}$.

$\frac{\text{Nickel}}{\text{Copper}} = \frac{5/4}{15/4} = \frac{5}{4} \times \frac{4}{15} = \frac{1}{3} = 1:3$.

8. Let the two pieces will be x, $\frac{x}{2}$

Total height of pole = 3 metres

i.e. $x + \frac{x}{2} = 3$

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

$\frac{3x}{2} = 3$

$x = \frac{3 \times 2}{3}$

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

∴ Length of two pieces are 2, 1 metres

9. Given Height of Anshul & Dhruv are 1.04 m and 78 cm

Ratio of their heights = $\frac{\text{Height of Anshul}}{\text{Height of Dhruv}}$

$= \frac{1.04 \text{ m}}{78 \text{ cm}}$

$= \frac{1.04 \times 100}{78}$ $(\because 1\text{m} = 100\text{cm})$

$= \frac{104}{78}$

$= 4 : 3$

10.

Total money to be shared = ₹ 180.

Ratio of three children = $\frac{1}{3} : \frac{1}{4} : \frac{1}{6}$

LCM of 3, 4 and 6 is 12

$= \frac{1}{3} \times 12 : \frac{1}{4} \times 12 : \frac{1}{6} \times 12$

$= 4 : 3 : 2$

3	3, 4, 6
2	1, 4, 2
	1, 2, 1

Total sum of ratio = 4 + 3 + 2 = 9.

1st Children share = $\frac{4}{9} \times \overset{20}{\cancel{180}} = 4 \times 20 = ₹ 80.$

2nd Children share = $\frac{3}{9_1} \times \overset{20}{\cancel{180}} = 3 \times 20 = ₹ 60.$

3rd Children share = $\frac{2}{9} \times \overset{20}{\cancel{180}} = 2 \times 20 = ₹ 40.$

11. Let the two parts be $7x$, $11x$

Given difference of two parts = 20.

i.e $11x - 7x = 20$

$4x = 20$

$x = \frac{20}{4}$

$x = 5$

$\therefore 7x = 7 \times 5 = 35$; $11x = 11 \times 5 = 55$

Sum of two numbers = $35 + 55 = 90$.

12. Let the total amount be ₹ x.

The amount has been divided in to two parts in the ratio 9 : 13.

Sum of ratios = $9 + 13 = 22$.

According to given condition, $\frac{13}{22}$ of ₹ $x = 260$

$\Rightarrow \frac{13}{22} \times x = 260 \Rightarrow x = \frac{260 \times 22}{13}$

$x = ₹\ 440$.

Hence, the total amount = ₹ 440.

13. As the present ages of Anjali and Ashu are in the ratio 2:3

Let their present ages be $2x$, years and $3x$ years resp.

After 5 years,

the age of Anjali will be $(2x+5)$ years and the age of Ashu will be $(3x+5)$ years.

According to given information, $\frac{2x+5}{3x+5} = \frac{3}{4}$.

$$3(3x+5) = 4(2x+5)$$

$$9x + 15 = 8x + 20$$

$$9x - 8x = 20 - 15$$

$$x = 5$$

Hence, the present age of Anjali $= 2 \times 5 = 10$ years

and the present age of Ashu $= 3 \times 5 = 15$ years

14. Let their present ages of A and B be $5x$ years and $6x$ years resp.

Three years ago,

The age of A will be $(5x-3)$ and the age of B will be $(6x-3)$ years.

According to given information, $\frac{5x-3}{6x-3} = \frac{4}{5}$

$$5(5x-3) = 4(6x-3)$$

$$25x - 15 = 24x - 12$$

$$25x - 24x = 15 - 12$$

$$x = 3$$

Hence, the present age of A $= 5 \times 3 = 15$ years
and the present age of B $= 6 \times 3 = 18$ years

15 Let the numbers be $5x, 6x$.

2 is added to first $= 5x + 2$

3 is added to second $= 6x + 3$.

Their ratio, $\frac{5x+2}{6x+3} = \frac{4}{5}$

$$5(5x+2) = 4(6x+3)$$

$$25x + 10 = 24x + 12$$

$$25x - 24x = 12 - 10$$

$$x = 2 \Rightarrow 5x = 5 \times 2 = 10$$
$$6x = 6 \times 2 = 12$$

∴ The numbers are 10, 12.

16. Let the number of boys and girls be $7x$, $6x$.

Total no of students = 1430

$$7x + 6x = 1430$$

$$13x = 1430$$

$$x = \frac{1430}{13}$$

$$x = 110$$

∴ Number of boys = $7x = 7 \times 110 = 770$

Number of girls = $6x = 6 \times 110 = 660$

As, given 26 new girls are admitted

i.e $660 + 26 = 686$.

Let the new boys are admitted be x.

Ratio of number of boys to girls = 8 : 7

i.e $$\frac{x + 770}{686} = \frac{8}{7}.$$

$$x + 770 = \frac{8}{\cancel{7}} \times \overset{98}{\cancel{686}}$$

$$x + 770 = 784.$$

$$x = 784 - 770$$

$x = 14$ new boys are admitted.

17. i) 5:6 or 6:7

$\frac{5}{6}$; $\frac{6}{7}$

Lcm of 6, 7 is 42

i.e $\frac{5}{6} \times \frac{7}{7} = \frac{35}{42}$; $\frac{6}{7} \times \frac{6}{6} = \frac{36}{42}$

As $36 > 35$, so 6:7 is greater than 5:6.

ii) 13 : 24 (or) 17 : 32

$\frac{13}{24}$ (or) $\frac{17}{32}$

Lcm of 24, 32 is 96.

$8 \overline{)24, 32}$
$3, 4$

i.e $\frac{13}{24} \times \frac{4}{4} = \frac{52}{96}$; $\frac{17}{32} \times \frac{3}{3} = \frac{51}{96}$

As $52 > 51$, so 13:24 is greater than 17:32.

EXERCISE : 6.2

1

i) $2.5 : 1.5 = \frac{2.5}{1.5} \times \frac{10}{10}$

$= \frac{25}{15} = \frac{5}{3}$.

$7.0 : 4.2 = \frac{7.0}{4.2} \times \frac{10}{10}$

$= \frac{70}{42} 5 = \frac{5}{3}$.

$\therefore \frac{2.5}{1.5} :: \frac{7.0}{4.2} = \frac{5}{3} :: \frac{5}{3}$, True

ii) $\frac{1}{2} : \frac{1}{3}$ $\qquad$ $\frac{1}{3} : \frac{1}{4}$

LCM of 2, 3 is 6 $\qquad$ LCM of 3, 4 is 12

$\frac{1}{2} \times 6 : \frac{1}{3} \times 6 = 3 : 2$ $\qquad$ $\frac{1}{3} \times 12 : \frac{1}{4} \times 12 = 4 : 3$

$3 : 2 \neq 4 : 3$, False.

iii) 24 men : 16 men ; 33 horses : 22 horses

$= \frac{24}{16}$; $= \frac{33}{22}$

$= \frac{3}{2}$ $\qquad$ $= \frac{3}{2}$

$\frac{3}{2} = \frac{3}{2}$, True.

2

i) Product of extremes $= 18 \times 5 = 90$

Product of means $= 9 \times 10 = 90$.

By cross product rule, the numbers 18, 10, 9, 5 are in proportion.

ii) $3\frac{1}{2} = 3 + \frac{1}{2} = \frac{6+1}{2} = \frac{7}{2}$.

$4\frac{1}{2} = 4 + \frac{1}{2} = \frac{8+1}{2} = \frac{9}{2}$.

Product of extremes $= 3 \times \frac{9}{2} = \frac{27}{2}$.

Product of means $= 4 \times \frac{7}{2} = \frac{28}{2}$.

$\therefore$ The numbers are not in proporation.

3

i) $\frac{x}{4} = \frac{9}{12}$

Cross product

$12 \times x = 9 \times 4$

$x = \frac{9 \times 4}{12} = \frac{36}{12}$

$\boxed{x = 3}$

ii) $\frac{1}{13} : x :: \frac{1}{2} : \frac{1}{5}$

$\Rightarrow \frac{1}{13} : x = \frac{1}{2} : \frac{1}{5}$

$\frac{1/13}{x} = \frac{1/2}{1/5}$

$\frac{1}{13x} = \frac{1}{2} \times 5$

$\frac{1}{13x} = \frac{5}{2}$.

Cross multiplication

$2 \times 1 = 13x \times 5$

$65x = 2$

$x = \boxed{2/65}$

iii) $3.6 : 0.4 = x : 0.5$

$\frac{3.6}{0.4} = \frac{x}{0.5}$

$\frac{3.6 \times 10}{0.4 \times 10} = \frac{x \times 10}{0.5 \times 10}$

$\frac{36^{9}}{4_{1}} = \frac{10x}{5}$

$9 = \frac{10x}{5}$.

$$10x = 9 \times 5$$

$$x = \frac{9 \times 5}{10} = \frac{45}{10}$$

$$\boxed{x = 4.5}$$

4. If a, b, c and d are in proportion then $ad = bc$

d is the fourth proportion

i) $a = 42 : b = 12 : c = 7 : d = ?$

$$42 \times d = 12 \times 7$$

$$42d = 84$$

$$d = \frac{84}{42}$$

$d = 2$ is fourth proportion

ii) $a = \frac{1}{3}, b = \frac{1}{4}, c = \frac{1}{5}, d = ?$

$$\frac{1}{3} \times d = \frac{1}{4} \times \frac{1}{5}$$

$$\frac{d}{3} = \frac{1}{20}$$

$d = \frac{3}{20}$. is fourth proportion

iii) $a = 3,\ b = 12,\ c = 15,\ d = ?$

$$3 \times d = 12 \times 15$$

$$d = \frac{12 \times 15^{5}}{3}$$

$$d = 12 \times 5$$

$d = 60$ is fourth proportion.

5 Continued proportion

if a, b, c are said to be in continued proportion

if $a : b = b : c$ i.e $b^2 = ac$

$a = 7,\ b = 49,\ c = 343$

$b^2 = 49^2 = 2401$

$ac = 7 \times 343 = 2401$

$\therefore b^2 = ac$

$\therefore$ They are said to be in Continued proportion.

6. As we know $b^2 = ac$ if a, b, c are in proportion

Third proportion, $c = \frac{b^2}{a}$.

i) $a = 36 : b = 18,\ c = ?$

$$c = \frac{18^2}{36}$$

$$c = \frac{18 \times 18}{36}$$

$c = 9$ is Third proportion

ii) $a = 5\frac{1}{4} = \frac{21}{4}$; $b = 7$; $c = 9$

$$c = \frac{7^2}{(21/4)}$$

$$c = \frac{7 \times 7 \times 4}{21}$$

$c = \frac{28}{3}$ is Third proportion.

iii) $a = 3.2 = \frac{32}{10} = \frac{16}{5}$, $b = 0.8 = \frac{8}{10} = \frac{4}{5}$.

$$c = \frac{(4/5)^2}{(16/5)}$$

$$= \frac{16}{25} \times \frac{5}{16}$$

$c = \frac{1}{5}$ is Third proportion

7 Given Ratio of length to width is 7:5

Width of sheet = 20.5 cm

Length of sheet = ?

$$\frac{\text{Length}}{\text{width}} = \frac{7}{5}$$

$$\frac{\text{Length}}{20.5} = \frac{7}{5}$$

$$\text{Length} = \frac{7}{\cancel{5}} \times \overset{4.1}{\cancel{20.5}}$$

$$\text{Length} = 28.7 \text{ cm}$$

8.

Amit age is 4 years 8 months

i.e $(4 + \frac{8}{12})$ year

$= 4\frac{2}{3}$ years $= \frac{14}{3}$ years

Ages of Amit and Archana are in ratio 4:5

i.e $\frac{\text{Amit}}{\text{Archana}} = \frac{4}{5}$

$$\frac{14/3}{\text{Archana}} = \frac{4}{5}$$

$$\text{Archana age} = \frac{\overset{7}{\cancel{14}}}{3} \times \frac{5}{\cancel{12}} = \frac{35}{6} \text{ years}$$

∴ Archana's age is 5 years 10 months

Since $\frac{35}{6} \times \frac{2}{2} = \frac{70}{12}$

$$12\overline{)70}\ 5$$
$$\underline{60}$$
$$10$$

$\frac{70}{12} = 5\frac{10}{12}$ years

i.e 5 years 10 months.

$\therefore$ Archana's age is 5 years 10 months.

EXERCISE : 6.3

1. Cost of 6 bowls = ₹ 90.

Then Cost of 10 such bowls = ?

Let Cost of 10 bowls = ₹ x.

i.e $\frac{x}{90} = \frac{10}{6}$

$$x = \frac{\overset{5}{\cancel{10}} \times 90^{30}}{\cancel{6}_1}$$

x = ₹ 150

∴ Cost of 10 such bowls = ₹ 150.

2. With the Cost of ₹ 15, we bought = 10 pencils

Then with the Cost of ₹ 72, we bought = ? pencils

Let it be = x pencils.

i.e $\frac{x}{10} = \frac{72}{15}$

$$x = \frac{72 \times 10}{15}$$

$$x = \frac{720}{15}$$

x = 48 pencils

3. Given 400 grams Cake costs ₹ 80.

Then 1.5 kg Cake Cost = ?

Let the cost be ₹ x.

i.e $\frac{x}{80} = \frac{1.5\ kg}{400}$

$\frac{x}{80} = \frac{1.5 \times 1000}{400}$

$x = \frac{1500 \times 80^{20}}{\cancel{400}_{1}}$

$x = 15 \times 20$

$x = ₹\ 300$

∴ 1.5 kg Cake Cost = ₹ 300.

4. i) In 3 months, a man earns ₹ 18000

In x months, a man earns ₹ 30,000.

i.e $\frac{x}{3} = \frac{30,000}{18000}$

$x = \frac{30 \times 3}{18} = \frac{90}{18}$

$x = 5$

∴ In 5 months, a man earns ₹ 30,000.

ii) In 3 months, he earns Ksh 18,000

Let in 7 months, he earns Ksh x.

$$\therefore \frac{x}{18,000} = \frac{7}{3}$$

$$x = \frac{7 \times 18,000^{6000}}{3}$$

$$x = 7 \times 6,000$$

$$x = 42,000$$

∴ In 7 months, he earns Ksh 42,000.

5. Given 12 mangoes weigh 2.4 kg

Then 8 mangoes weigh x kg

$$\therefore \frac{x}{2.4} = \frac{8}{12}$$

$$x = \frac{8 \times 2.4}{12}$$

$$x = \frac{8 \times 24^{2}}{\cancel{12} \times 10} = \frac{16}{10}$$

$$\boxed{x = 1.6 \text{ kg}}$$

∴ 8 mangoes weigh 1.6 kg

6. Given 12 sheets of thick paper = 40 grams.

Let x sheets of thick paper $= 2\frac{1}{2}$ kg

$= \frac{5}{2}$ kg

$$\therefore \frac{x}{12} = \frac{5/2 \text{ kg}}{40 \text{ g}}$$

$$\frac{x}{12} = \frac{\frac{5}{2} \times 1000^{500} \text{ g}}{40 \text{ g}}$$

$$\frac{x}{12} = \frac{5 \times 500^{125}}{40_{10}}$$

$$\frac{x}{12} = \frac{5 \times 125}{10}$$

$$x = \frac{5 \times 125 \times 12^{6}}{10_{2}}$$

$$\boxed{x = 750}$$

7. For a distance of 90 km, a bus consumes = 25 litres

Let For a distance of 288 km, a bus consumes = x litres

$$\therefore \frac{x}{25} = \frac{288}{90}$$

$$x = \frac{288^{32} \times 25}{90_{10}}$$

$$x = \frac{32 \times 25}{10}$$

$$x = 16 \times 5$$

$$\boxed{x = 80 \text{ litres}}$$

∴ For a distance of 288 kgm, a bus consumes = 80 litres

8. Given $\frac{4}{5}$ metre cloth costs ₹ 36

Then $2\frac{1}{5}$ metre cloth costs ₹ x

$$2\frac{1}{5} = 2 + \frac{1}{5} = \frac{10+1}{5} = \frac{11}{5}$$

$$\therefore \frac{x}{36} = \frac{11/5}{4/5}$$

$$\frac{x}{36} = \frac{11}{8} \times \frac{8}{4}$$

$$\frac{x}{36} = \frac{11}{4}$$

$$x = \frac{11}{4} \times 36^{9}$$

$$\boxed{x = 99}$$

∴ $2\frac{1}{5}$ metre cloth costs ₹ 99

9. Given 15 men can pack 540 parcels per day

Let x men can pack 396 parcels per day

i.e $\frac{x}{15} = \frac{396}{540}$

$x = \frac{396 \times 15^{1}}{540}$

$\boxed{x = 11}$

∴ 11 men can pack 396 parcels per day

10. Given 12 kg potatoes costs ₹ 132

Then 1 kg potatoes costs ₹ x

i.e $\frac{x}{132} = \frac{1}{12}$

$x = \frac{132 \times 1}{12}$

$\boxed{x = ₹11}$

∴ 1 kg potatoes costs ₹ 11

Given 16 kg potatoes costs ₹ 168

Then 1 kg potatoes costs ₹ ?

Let the cost ₹ x.

i.e $\frac{x}{168} = \frac{1}{16}$

$x = \frac{\cancel{168}\, 21}{\cancel{16}\, 2}$

$x = ₹\frac{21}{2}$

$\boxed{x = ₹10.5}$

$\therefore$ 1 kg potatoes = ₹ 10.5

Compared to 1st case, 2nd case is better buy

EXERCISE : 6.4

1 $1\ km/h = \frac{5}{18}\ m/sec$

i) $72\ km/h = \overset{4}{\cancel{72}} \times \frac{5}{\cancel{18}} = 4 \times 5 = 20\ m/sec$

ii) $9\ km/h = 9 \times \frac{5}{\cancel{18}_2} = \frac{5}{2}\ m/sec = 2.5\ m/sec$

iii) $1.2\ km/min = 1.2 \times \frac{1000\ m}{60\ sec} = \frac{1200}{60}\ m/sec = 20\ m/sec$

iv) $600\ m/hour = \cancel{600} \times \frac{1}{\cancel{60} \times 60}\ m/sec = \frac{1}{6}\ m/sec$

2 $1\ m/sec = \frac{18}{5}\ km/h$

i) $15\ m/sec = \overset{3}{\cancel{15}} \times \frac{18}{\cancel{5}_1}\ km/h = 54\ km/h$

ii) $1.5\ m/sec = \frac{\cancel{15}^{3}}{\cancel{10}} \times \frac{18}{\cancel{5}_1}\ km/h = \frac{54}{10}\ km/h = 5.4\ km/h.$

3. $30\ m/sec = \overset{6}{\cancel{30}} \times \frac{18}{\cancel{5}}\ km/h = 108\ km/h.$

Since, $108\ km/h > 30\ km/h$

So, $30\ m/sec > 30\ km/h.$

4. i) Given speed of aeroplane = 720 km/h

also Distance between two cities = 1800 km.

We know, Time = $\frac{\text{Distance}}{\text{Speed}}$

$= \frac{1800}{720}$ hour

$= \frac{5}{2}$ hours

Time = $2\frac{1}{2}$ hours

ii) Here Time = 40 min, Speed = 720 km/h

$= \frac{720 \times 1000}{60}$ km/min

$= 12{,}000$ km/min

Now Distance = Speed × Time

$= 12{,}000 \times 40$ m

$= 480000$ m

$= \frac{480000}{1000}$ km

Distance = 480 km

iii) Given Time = 15 sec, Speed = 720 km/h

$= 720 \times \frac{5}{18}$ m/sec

$= 200$ m/sec

Distance = Speed × Time

$= 15 \times 200$ m

$= 3000\ m$

$= \frac{3000}{1000}\ km$

$\therefore$ Distance $= 3\ km$

5. Given Speed $= 6\ km/h$

$= \frac{6 \times 1000\ m}{60\ min}$

$= 100\ m/min$

i) Distance = Speed $\times$ Time

$= 100 \times 5$

$= 500$ metres

$= 0.5\ km$

ii) $\text{Time} = \frac{\text{Distance}}{\text{Speed}} = \frac{200}{100}$

Time $= 2$ min

6. Given Distance $= 50$ metres

$= \frac{50}{1000}\ km$

$= 0.05\ km$

$= \frac{1}{20}\ km$

Total Distance $= 2 \times \frac{1}{20}\ km = \frac{1}{10}\ km$

Time taken = 5 min

$= \frac{5}{60}$ hours

Now, Speed $= \frac{\text{Distance}}{\text{Time}}$

$= \frac{(1/10)\text{ km}}{(5/60)\text{ hours}}$

$= \frac{1}{10} \times \frac{60^{6}}{5}$

$= \frac{6}{5}$

Speed = 1.2 km/h

7. Given Time = 48 minutes $= \frac{48^{4}}{60_{5}}$ hours

$= \frac{4}{5}$ hours.

Speed = 50 km/h

Distance = Speed × Time

$= 50 \times \frac{4}{5}$

= 40 km.

Time = 9 ; Speed = 30 km/h

Time = $\frac{\text{Distance}}{\text{Speed}}$

$= \frac{40}{30}$ hours

$= \frac{4}{3}$ hours

$= \frac{4}{\cancel{3}} \times \cancel{60}^{20}$ min

$\therefore$ **Time = 80 min**