



Operations on Fractions

Exercise-1

1. (a) $\frac{5}{9} + \frac{3}{9} = \frac{5+3}{9} = \frac{8}{9}$

(b) $\frac{1}{12} + \frac{7}{12} = \frac{1+7}{12} = \frac{8}{12}$. But $\frac{8}{12}$ is not in the lowest terms.

Now, $\frac{8}{12} = \frac{8 \div 4}{12 \div 4} = \frac{2}{3}$ (HCF of 8 and 12 = 4).

Thus, $\frac{1}{12} + \frac{7}{12} = \frac{2}{3}$

(c) $\frac{7}{16} + \frac{5}{24} = \frac{21}{48} + \frac{10}{48}$
 $= \frac{21+10}{48} = \frac{31}{48}$

$$\left[\begin{array}{l} \text{LCM of 16 and 24} = 48 \\ \frac{7}{16} = \frac{7 \times 3}{16 \times 3} = \frac{21}{48}, \\ \frac{5}{24} = \frac{5 \times 2}{24 \times 2} = \frac{10}{48} \end{array} \right]$$

Thus, $\frac{7}{16} + \frac{5}{24} = \frac{31}{48}$

(d) $\frac{5}{12} + \frac{1}{4} = \frac{5}{12} + \frac{3}{12}$
 $= \frac{5+3}{12} = \frac{8}{12}$

$$\left[\begin{array}{l} \text{LCM of 12 and 4} = 12 \\ \frac{5}{12} = \frac{5 \times 1}{12 \times 1} = \frac{5}{12}, \\ \frac{1}{4} = \frac{1 \times 3}{4 \times 3} = \frac{3}{12} \end{array} \right]$$

Now, $\frac{8}{12} = \frac{8 \div 4}{12 \div 4} = \frac{2}{3}$ (HCF of 8 and 12 = 4)

Thus, $\frac{5}{12} + \frac{1}{4} = \frac{2}{3}$

(e) $\frac{11}{15} + \frac{1}{6} = \frac{22}{30} + \frac{5}{30}$
 $= \frac{22+5}{30} = \frac{27}{30}$

$$\left[\begin{array}{l} \text{LCM of 15 and 6} = 30 \\ \frac{11}{15} = \frac{11 \times 2}{15 \times 2} = \frac{22}{30}, \\ \frac{1}{6} = \frac{1 \times 5}{6 \times 5} = \frac{5}{30} \end{array} \right]$$

Now, $\frac{27}{30} = \frac{27 \div 3}{30 \div 3} = \frac{9}{10}$ (HCF of 27 and 30 = 3)

Thus, $\frac{11}{15} + \frac{1}{6} = \frac{9}{10}$

2. (a) $\frac{5}{14} + \frac{7}{14} + \frac{1}{14} = \frac{5+7+1}{14} = \frac{13}{14}$

$$\begin{aligned} \text{(b)} \quad \frac{1}{12} + \frac{5}{9} + \frac{2}{36} &= \frac{3}{36} + \frac{20}{36} + \frac{2}{36} \\ &= \frac{3+20+2}{36} \\ &= \frac{25}{36} \end{aligned}$$

$$\left[\begin{array}{l} \because \text{LCM of } 12, 9, 36 = 36 \\ \frac{1}{12} = \frac{1 \times 3}{12 \times 3} = \frac{3}{36}, \\ \frac{5}{9} = \frac{5 \times 4}{9 \times 4} = \frac{20}{36}, \\ \frac{2}{36} = \frac{2 \times 1}{36 \times 1} = \frac{2}{36} \end{array} \right]$$

$$\text{Thus, } \frac{1}{12} + \frac{5}{9} + \frac{2}{36} = \frac{25}{36}$$

$$\begin{aligned} \text{(c)} \quad \frac{2}{7} + \frac{5}{21} + \frac{2}{6} &= \frac{12}{42} + \frac{10}{42} + \frac{14}{42} \\ &= \frac{12+10+14}{42} \\ &= \frac{36}{42} \end{aligned}$$

$$\left[\begin{array}{l} \because \text{LCM of } 7, 21, 6 = 42 \\ \frac{2}{7} = \frac{2 \times 6}{7 \times 6} = \frac{12}{42}, \\ \frac{5}{21} = \frac{5 \times 2}{21 \times 2} = \frac{10}{42}, \\ \frac{2}{6} = \frac{2 \times 7}{6 \times 7} = \frac{14}{42} \end{array} \right]$$

$$\text{Now, } \frac{36}{42} = \frac{36 \div 6}{42 \div 6} = \frac{6}{7} \quad (\text{HCF of } 36 \text{ and } 42 = 6)$$

$$\therefore \frac{2}{7} + \frac{5}{21} + \frac{2}{6} = \frac{6}{7}$$

$$3. \text{ (a)} \quad 3\frac{2}{3} + \frac{2}{3} = \frac{11}{3} + \frac{2}{3} = \frac{11+2}{3} = \frac{13}{3} = 4\frac{1}{3}$$

$$\begin{aligned} \text{(b)} \quad 2\frac{3}{8} + 1\frac{5}{12} &= \frac{19}{8} + \frac{17}{12} = \frac{57}{24} + \frac{34}{24} \\ &= \frac{57+34}{24} \\ &= \frac{91}{24} = 3\frac{19}{24} \end{aligned}$$

$$\left[\begin{array}{l} \text{LCM of } 8 \text{ and } 12 = 24 \\ \frac{19}{8} = \frac{19 \times 3}{8 \times 3} = \frac{57}{24}, \\ \frac{17}{12} = \frac{17 \times 2}{12 \times 2} = \frac{34}{24} \end{array} \right]$$

$$\begin{aligned} \text{(c)} \quad 1\frac{1}{4} + 3\frac{1}{6} &= \frac{5}{4} + \frac{19}{6} \\ &= \frac{15}{12} + \frac{38}{12} \\ &= \frac{15+38}{12} = \frac{53}{12} = 4\frac{5}{12} \end{aligned}$$

$$\left[\begin{array}{l} \text{LCM of } 4 \text{ and } 6 = 12 \\ \frac{5}{4} = \frac{5 \times 3}{4 \times 3} = \frac{15}{12}, \\ \frac{19}{6} = \frac{19 \times 2}{6 \times 2} = \frac{38}{12} \end{array} \right]$$

Exercise-2

$$1. \text{ (a)} \quad \frac{3}{11} - \frac{2}{11} = \frac{3-2}{11} = \frac{1}{11}$$

$$\text{(b)} \quad \frac{5}{17} - \frac{3}{17} = \frac{5-3}{17} = \frac{2}{17}$$

$$(c) \frac{11}{14} - \frac{7}{14} = \frac{11-7}{14} = \frac{4}{14}$$

$$\text{Now, } \frac{4}{14} = \frac{4 \div 2}{14 \div 2} = \frac{2}{7} \text{ (HCF of 4 and 14 = 2)}$$

$$\therefore \frac{11}{14} - \frac{7}{14} = \frac{2}{7}$$

$$(d) \frac{15}{24} - \frac{7}{24} = \frac{15-7}{24} = \frac{8}{24}$$

$$\text{Now, } \frac{8}{24} = \frac{8 \div 8}{24 \div 8} = \frac{1}{3} \text{ (HCF of 8 and 24 = 8)}$$

$$\therefore \frac{15}{24} - \frac{7}{24} = \frac{1}{3}$$

$$(e) \frac{21}{23} - \frac{10}{23} = \frac{21-10}{23} = \frac{11}{23}$$

$$(g) \frac{16}{31} - \frac{12}{31} = \frac{16-12}{31} = \frac{4}{31}$$

$$(f) \frac{8}{18} - \frac{3}{18} = \frac{8-3}{18} = \frac{5}{18}$$

$$(h) \frac{17}{15} - \frac{13}{15} = \frac{17-13}{15} = \frac{4}{15}$$

$$2. (a) \frac{3}{14} - \frac{1}{7} = \frac{3}{14} - \frac{2}{14} \\ = \frac{3-2}{14} = \frac{1}{14}$$

$$\left[\begin{array}{l} \text{LCM of 14 and 7 = 14} \\ \frac{1}{7} = \frac{1 \times 2}{7 \times 2} = \frac{2}{14} \end{array} \right]$$

$$(b) \frac{5}{8} - \frac{1}{4} = \frac{5}{8} - \frac{2}{8} \\ = \frac{5-2}{8} = \frac{3}{8}$$

$$\left[\begin{array}{l} \text{LCM of 8 and 4 = 8} \\ \frac{1}{4} = \frac{1 \times 2}{4 \times 2} = \frac{2}{8} \end{array} \right]$$

$$(c) \frac{3}{5} - \frac{4}{10} = \frac{6}{10} - \frac{4}{10} \\ = \frac{6-4}{10} = \frac{2}{10}$$

$$\left[\begin{array}{l} \text{LCM of 5 and 10 = 10} \\ \frac{3}{5} = \frac{3 \times 2}{5 \times 2} = \frac{6}{10} \end{array} \right]$$

$$\text{Now, } \frac{2}{10} = \frac{2 \div 2}{10 \div 2} = \frac{1}{5}$$

$$\text{(HCF of 2 and 10 = 2)}$$

$$\therefore \frac{3}{5} - \frac{4}{10} = \frac{1}{5}$$

$$(d) \frac{3}{4} - \frac{1}{6} = \frac{9}{12} - \frac{2}{12} \\ = \frac{9-2}{12} \\ = \frac{7}{12}$$

$$\left[\begin{array}{l} \text{LCM of 4 and 6 = 12} \\ \frac{3}{4} = \frac{3 \times 3}{4 \times 3} = \frac{9}{12} \\ \frac{1}{6} = \frac{1 \times 2}{6 \times 2} = \frac{2}{12} \end{array} \right]$$

$$\begin{aligned} \text{(e)} \quad \frac{6}{7} - \frac{5}{6} &= \frac{36}{42} - \frac{35}{42} \\ &= \frac{36-35}{42} \\ &= \frac{1}{42} \end{aligned}$$

$$\left[\begin{array}{l} \text{LCM of 7 and 6} = 42 \\ \frac{6}{7} = \frac{6 \times 6}{7 \times 6} = \frac{36}{42}, \\ \frac{5}{6} = \frac{5 \times 7}{6 \times 7} = \frac{35}{42} \end{array} \right]$$

$$\begin{aligned} \text{(f)} \quad \frac{11}{12} - \frac{3}{4} &= \frac{11}{12} - \frac{9}{12} \\ &= \frac{11-9}{12} = \frac{2}{12} \end{aligned}$$

$$\left[\begin{array}{l} \text{LCM of 12 and 4} = 12 \\ \frac{3}{4} = \frac{3 \times 3}{4 \times 3} = \frac{9}{12} \end{array} \right]$$

$$\text{Now, } \frac{2}{12} = \frac{2 \div 2}{12 \div 2} = \frac{1}{6}$$

(HCF of 2 and 12 = 2)

$$\therefore \frac{11}{12} - \frac{3}{4} = \frac{1}{6}$$

$$\begin{aligned} \text{(g)} \quad \frac{1}{6} - \frac{1}{8} &= \frac{8}{48} - \frac{6}{48} \\ &= \frac{8-6}{48} = \frac{2}{48} \end{aligned}$$

$$\left[\begin{array}{l} \text{LCM of 6 and 8} = 48 \\ \frac{1}{6} = \frac{1 \times 8}{6 \times 8} = \frac{8}{48}, \\ \frac{1}{8} = \frac{1 \times 6}{8 \times 6} = \frac{6}{48} \end{array} \right]$$

$$\text{Now, } \frac{2}{48} = \frac{2 \div 2}{48 \div 2} = \frac{1}{24}$$

(HCF of 2 and 48 = 2)

$$\therefore \frac{1}{6} - \frac{1}{8} = \frac{1}{24}$$

$$\begin{aligned} \text{(h)} \quad \frac{2}{3} - \frac{1}{12} &= \frac{8}{12} - \frac{1}{12} \\ &= \frac{8-1}{12} = \frac{7}{12} \end{aligned}$$

$$\left[\begin{array}{l} \text{LCM of 3 and 12} = 12 \\ \frac{2}{3} = \frac{2 \times 4}{3 \times 4} = \frac{8}{12}, \\ \frac{1}{12} = \frac{1 \times 1}{12 \times 1} = \frac{1}{12} \end{array} \right]$$

$$3. \text{ (a)} \quad 2\frac{3}{4} - 1\frac{1}{4} = \frac{11}{4} - \frac{5}{4} = \frac{11-5}{4} = \frac{6}{4}$$

$$= \frac{6 \div 2}{4 \div 2} = \frac{3}{2} = 1\frac{1}{2} \quad (\because \text{HCF of 6 and 4} = 2)$$

$$\begin{aligned} \text{(b)} \quad 3\frac{5}{6} - 1\frac{1}{3} &= \frac{23}{6} - \frac{4}{3} \\ &= \frac{23}{6} - \frac{8}{6} = \frac{23-8}{6} = \frac{15}{6} \\ &= \frac{15 \div 3}{6 \div 3} \end{aligned}$$

$$\left[\begin{array}{l} \text{LCM of 6 and 3} = 6 \\ \frac{4}{3} = \frac{4 \times 2}{3 \times 2} = \frac{8}{6} \end{array} \right]$$

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

($\because$ HCF of 15 and 6 = 3)

$$\begin{aligned}
 \text{(c)} \quad 7\frac{5}{8} - 4\frac{3}{4} &= \frac{61}{8} - \frac{19}{4} \\
 &= \frac{61}{8} - \frac{38}{8} \\
 &= \frac{61-38}{8} \\
 &= \frac{23}{8} = 2\frac{7}{8}
 \end{aligned}$$

$$\left[\begin{array}{l} \text{LCM of 8 and 4} = 8 \\ \frac{19}{4} = \frac{19 \times 2}{4 \times 2} = \frac{38}{8} \end{array} \right]$$

$$\begin{aligned}
 \text{(d)} \quad 5\frac{1}{15} - 2\frac{2}{5} &= \frac{76}{15} - \frac{12}{5} \\
 &= \frac{76}{15} - \frac{36}{15} \\
 &= \frac{76-36}{15} \\
 &= \frac{40}{15} = \frac{40 \div 5}{15 \div 5} = \frac{8}{3} \\
 &= 2\frac{2}{3}
 \end{aligned}$$

$$\left[\begin{array}{l} \text{LCM of 15 and 5} = 15 \\ \frac{12}{5} = \frac{12 \times 3}{5 \times 3} = \frac{36}{15} \end{array} \right]$$

(HCF of 40 and 15 = 5)

Exercise-3

$$1. 3 \times \frac{3}{4} = \frac{3 \times 3}{4} = \frac{9}{4} = 2\frac{1}{4}$$

$$2. \frac{2}{3} \times 7 = \frac{2 \times 7}{3} = \frac{14}{3} = 4\frac{2}{3}$$

$$3. 3 \times \frac{4}{5} = \frac{3 \times 4}{5} = \frac{12}{5} = 2\frac{2}{5}$$

$$4. 5 \times \frac{8}{9} = \frac{5 \times 8}{9} = \frac{40}{9} = 4\frac{4}{9}$$

$$5. 8 \times \frac{7}{11} = \frac{8 \times 7}{11} = \frac{56}{11} = 5\frac{1}{11}$$

$$6. 10 \times \frac{4}{9} = \frac{10 \times 4}{9} = \frac{40}{9} = 4\frac{4}{9}$$

$$7. \frac{7}{13} \times 26 = \frac{7 \times 26}{13} = \frac{182}{13} = 14$$

$$8. 15 \times \frac{8}{9} = \frac{15 \times 8}{9} = \frac{120}{9} = \frac{40}{3} = 13\frac{1}{3}$$

$$9. 7 \times \frac{8}{21} = \frac{7 \times 8}{21} = \frac{56}{21} = \frac{8}{3} = 2\frac{2}{3}$$

$$10. \frac{3}{4} \times 5 = \frac{3 \times 5}{4} = \frac{15}{4} = 3\frac{3}{4}$$

$$11. 10 \times \frac{6}{15} = \frac{10 \times 6}{15} = \frac{60}{15} = 4$$

$$12. 6 \times \frac{4}{5} = \frac{6 \times 4}{5} = \frac{24}{5} = 4\frac{4}{5}$$

$$13. \frac{5}{8} \times \frac{3}{4} = \frac{5 \times 3}{8 \times 4} = \frac{15}{32}$$

$$14. \frac{12}{17} \times \frac{17}{21} = \frac{12 \times 17}{17 \times 21} = \frac{4}{7}$$

$$15. 2\frac{3}{5} \times \frac{5}{9} = \frac{13}{5} \times \frac{5}{9} = \frac{13 \times 5}{5 \times 9} = \frac{13}{9} = 1\frac{4}{9}$$

$$16. 2\frac{2}{3} \times 1\frac{2}{3} = \frac{8}{3} \times \frac{5}{3} = \frac{8 \times 5}{3 \times 3} = \frac{40}{9} = 4\frac{4}{9}$$

$$17. 2\frac{5}{6} \times 3\frac{3}{4} = \frac{17}{6} \times \frac{15}{4} = \frac{17 \times 15}{6 \times 4} = \frac{85}{8} = 10\frac{5}{8}$$

$$18. 1\frac{8}{9} \times 2\frac{2}{5} = \frac{17}{9} \times \frac{12}{5} = \frac{17 \times 12}{9 \times 5} = \frac{68}{15} = 4\frac{8}{15}$$

Exercise-4

$$1. (a) \frac{9}{7} \quad (b) \frac{17}{9} \quad (c) 3 \quad (d) \frac{11}{6}$$

$$2. (a) 6 \div 8 = \frac{6}{8} = \frac{3}{4} \quad (b) \frac{1}{3} \div 4 = \frac{1}{3} \times \frac{1}{4} = \frac{1}{3 \times 4} = \frac{1}{12}$$

$$(c) \frac{5}{9} \div 15 = \frac{5}{9} \times \frac{1}{15} = \frac{5 \times 1}{9 \times 15} = \frac{1}{27}$$

$$(d) 77 \div \frac{11}{3} = 77 \times \frac{3}{11} = \frac{77 \times 3}{11} = 21$$

$$(e) \frac{18}{36} \div 12 = \frac{18}{36} \times \frac{1}{12} = \frac{18}{36 \times 12} = \frac{1}{24}$$

$$(f) \frac{11}{4} \div 55 = \frac{11}{4} \times \frac{1}{55} = \frac{11}{4 \times 55} = \frac{1}{20}$$

$$3. (a) 3\frac{5}{6} \div 1\frac{1}{3} = \frac{23}{6} \div \frac{4}{3} = \frac{23}{6} \times \frac{3}{4} = \frac{23 \times 3}{6 \times 4} = \frac{23}{8} = 2\frac{7}{8}$$

$$(b) 4\frac{3}{8} \div 3\frac{4}{7} = \frac{35}{8} \div \frac{25}{7} = \frac{35}{8} \times \frac{7}{25} = \frac{35 \times 7}{8 \times 25} = \frac{49}{40} = 1\frac{9}{40}$$

$$(c) 2\frac{2}{5} \div 5\frac{1}{15} = \frac{12}{5} \div \frac{76}{15} = \frac{12}{5} \times \frac{15}{76} = \frac{12 \times 15}{5 \times 76} = \frac{9}{19}$$

Exercise-5

1. $\frac{2}{5}$ and $\frac{1}{2}$ are unlike fractions, so, we convert them into like fractions.

LCM of 5 and 2 = 10.

$$\frac{2}{5} = \frac{2 \times 2}{5 \times 2} = \frac{4}{10}$$

$$\frac{1}{2} = \frac{1 \times 5}{2 \times 5} = \frac{5}{10}$$

$$\frac{5}{10} \text{ is greater than } \frac{4}{10} \quad \frac{5}{10} - \frac{4}{10} = \frac{5-4}{10} = \frac{1}{10}$$

$\therefore$ Sonal bought $\frac{1}{10}$ m longer ribbon than Manu.

2. Jyoti completed her Maths homework in $\frac{1}{6}$ hour and Science homework in $\frac{3}{10}$ hour.

$$\begin{aligned}
 \text{Total time taken by Jyoti} &= \left(\frac{1}{6} + \frac{3}{10}\right) \text{ hour} \\
 &= \left(\frac{5}{30} + \frac{9}{30}\right) \text{ hour} \\
 &= \left(\frac{5+9}{30}\right) \text{ hour} \\
 &= \frac{14}{30} \text{ hour} \\
 &= \frac{7}{15} \text{ hour}
 \end{aligned}
 \quad \left[\begin{array}{l} \text{LCM of 6 and 10} = 30 \\ \frac{1}{6} = \frac{1 \times 5}{6 \times 5} = \frac{5}{30}, \\ \frac{3}{10} = \frac{3 \times 3}{10 \times 3} = \frac{9}{30} \end{array} \right]$$

Thus, Jyoti took $\frac{7}{15}$ hour in all to complete her homework.

3. Total weight of the packets of snacks = $\left(10 \times \frac{3}{5}\right) \text{ kg}$

$$\text{Now, } 10 \times \frac{3}{5} = \frac{10 \times 3}{5} = \frac{30}{5} = 6$$

$\therefore$ Total weight of the packets of snacks is 6 kg.

$$\begin{aligned}
 4. \text{ Total quantity of milk} &= \left(1\frac{1}{4} + 2\frac{3}{8} + 1\frac{9}{16}\right) \ell \\
 &= \left(\frac{5}{4} + \frac{19}{8} + \frac{25}{16}\right) \ell \\
 &= \left(\frac{20}{16} + \frac{38}{16} + \frac{25}{16}\right) \ell \\
 &= \left(\frac{20+38+25}{16}\right) \ell = \frac{83}{16} \ell \\
 &= 5\frac{3}{16} \ell
 \end{aligned}
 \quad \left[\begin{array}{l} \text{LCM of 4, 8, 16} = 16 \\ \frac{5}{4} = \frac{5 \times 4}{4 \times 4} = \frac{20}{16}, \\ \frac{19}{8} = \frac{19 \times 2}{8 \times 2} = \frac{38}{16} \end{array} \right]$$

Hence, total quantity of milk with the milkman is $5\frac{3}{16} \ell$.

5. Cost of $3\frac{1}{2}$ kg of apples = ₹ $246\frac{3}{4}$

$$\therefore \text{Cost of 1 kg of apples} = ₹ 246\frac{3}{4} \div 3\frac{1}{2}$$

$$= ₹ \frac{987}{4} \div \frac{7}{2} = ₹ \frac{987}{4} \times \frac{2}{7} = ₹ \frac{141}{2} = ₹ 70\frac{1}{2}$$

Thus, the cost of 1 kg of apples is ₹ $70\frac{1}{2}$.

Review Exercise

$$1. (a) \frac{3}{5} + \frac{1}{5} = \frac{3+1}{5} = \frac{4}{5}$$

$$(b) \frac{9}{17} - \frac{3}{17} = \frac{9-3}{17} = \frac{6}{17}$$

$$(c) 1\frac{1}{2} + 2\frac{2}{3} = \frac{3}{2} + \frac{8}{3} = \frac{9}{6} + \frac{16}{6} \\ = \frac{9+16}{6} = \frac{25}{6} = 4\frac{1}{6}$$

$$\left[\begin{array}{l} \text{LCM of 2 and 3} = 6 \\ \frac{3}{2} = \frac{3 \times 3}{2 \times 3} = \frac{9}{6}, \frac{8}{3} = \frac{8 \times 2}{3 \times 2} = \frac{16}{6} \end{array} \right]$$

$$(d) 3\frac{9}{14} - 1\frac{3}{7} = \frac{51}{14} - \frac{10}{7} = \frac{51}{14} - \frac{20}{14} \\ = \frac{51-20}{14} = \frac{31}{14} = 2\frac{3}{14}$$

$$\left[\begin{array}{l} \text{LCM of 14 and 7} = 14 \\ \frac{10}{7} = \frac{10 \times 2}{7 \times 2} = \frac{20}{14} \end{array} \right]$$

$$(e) \frac{1}{12} - \frac{1}{20} = \frac{5}{60} - \frac{3}{60} \\ = \frac{5-3}{60} = \frac{2}{60} \\ = \frac{1}{30}$$

$$\left[\begin{array}{l} \text{LCM of 12 and 20} = 60 \\ \frac{1}{12} = \frac{1 \times 5}{12 \times 5} = \frac{5}{60}, \\ \frac{1}{20} = \frac{1 \times 3}{20 \times 3} = \frac{3}{60} \end{array} \right]$$

(Dividing by 2 as it is HCF of 2 and 60)

$$(f) \frac{10}{21} + \frac{1}{7} + \frac{5}{14} = \frac{20}{42} + \frac{6}{42} + \frac{15}{42} \\ = \frac{20+6+15}{42} \\ = \frac{41}{42}$$

$$\left[\begin{array}{l} \text{LCM of 21, 7, 14} = 42 \\ \frac{10}{21} = \frac{10 \times 2}{21 \times 2} = \frac{20}{42}, \\ \frac{1}{7} = \frac{1 \times 6}{7 \times 6} = \frac{6}{42}, \\ \frac{5}{14} = \frac{5 \times 3}{14 \times 3} = \frac{15}{42} \end{array} \right]$$

$$(g) 3 \times \frac{7}{15} = \frac{3 \times 7}{15} = \frac{7}{5} = 1\frac{2}{5}$$

$$(h) 15 \times \frac{3}{5} = \frac{15 \times 3}{5} = 9$$

$$2. \text{ Number of girls} = 48 \times \frac{5}{8} = \frac{48 \times 5}{8} = 30$$

$$\therefore \text{ Number of boys} = 48 - 30 = 18$$

Thus, there are 18 boys in the class.

$$3. \text{ Length of each piece} = 4\frac{4}{7} \text{ m} \div 16 = \frac{32}{7} \text{ m} \div 16 = \frac{32}{7} \times \frac{1}{16} \text{ m} = \frac{2}{7} \text{ m}$$

Thus, the length of each piece is $\frac{2}{7}$ m.

$$\begin{aligned}
 4. \text{ The other number} &= 3\frac{1}{8} - 2\frac{1}{4} \\
 &= \frac{25}{8} - \frac{9}{4} \\
 &= \frac{25}{8} - \frac{18}{8} = \frac{25-18}{8} = \frac{7}{8}
 \end{aligned}$$

$$\left[\begin{array}{l} \text{LCM of 8 and 4} = 8 \\ \frac{9}{4} = \frac{9 \times 2}{4 \times 2} = \frac{18}{8} \end{array} \right]$$

Thus, the other number is $\frac{7}{8}$.

$$\begin{aligned}
 5. \text{ Total time spent by Mahi} &= \left(2\frac{2}{3} + \frac{5}{12} + \frac{4}{15} \right) \text{ hours} \\
 &= \left(\frac{8}{3} + \frac{5}{12} + \frac{4}{15} \right) \text{ hours} \\
 &= \left(\frac{160}{60} + \frac{25}{60} + \frac{16}{60} \right) \text{ hours} \\
 &= \left(\frac{160+25+16}{60} \right) \text{ hours} \\
 &= \frac{201}{60} \text{ hours} \\
 &= \frac{67}{20} \text{ hours} = 3\frac{7}{20} \text{ hours}
 \end{aligned}$$

Thus, Mahi spends $3\frac{7}{20}$ hours in all.

HOTS

Total money spent on books and notebooks

$$\begin{aligned}
 &= \left(\frac{1}{2} + \frac{1}{3} \right) \text{ of the money} \\
 &= \left(\frac{3}{6} + \frac{2}{6} \right) \text{ of the money} \\
 &= \frac{3+2}{6} = \frac{5}{6} \text{ of the money}
 \end{aligned}$$

$$\therefore \text{ Money left} = 1 - \frac{5}{6} = \frac{6}{6} - \frac{5}{6} = \frac{6-5}{6} = \frac{1}{6} \text{ of the money.}$$

$$\text{Now, } \frac{1}{6} \text{ of the money} = ₹ 50$$

$$\therefore \text{ Total money} = ₹ 50 \times 6 = ₹ 300$$