



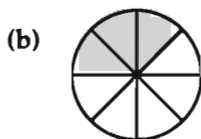
Fractions

Activity-1

1. (a) $\frac{2}{5}$ (b) $\frac{1}{6}$ (c) $\frac{3}{8}$ (d) $\frac{5}{12}$ (e) $\frac{4}{7}$ (f) $\frac{1}{4}$

2. (a) numerator = 3 (b) Fraction = $\frac{2}{7}$

(c) numerator = 18, denominator = 23



4. (a) $\frac{3}{6}$ (b) $\frac{7}{10}$

5. (a) = (b) < (c) < (d) < (e) = (f) >

6. (a) The fraction with greater numerator is greater for like fractions.

$$\text{So, } \frac{2}{17} < \frac{3}{17} < \frac{5}{17} < \frac{6}{17}$$

(b) Similarly, $\frac{1}{7} < \frac{3}{7} < \frac{4}{7} < \frac{6}{7}$

7. (a) The fraction with smaller denominator is greater for fractions with same numerator.

$$\therefore \frac{7}{9} > \frac{7}{11} > \frac{7}{13} > \frac{7}{15}$$

(b) $\frac{6}{17} > \frac{5}{17} > \frac{3}{17} > \frac{2}{17}$

8. (a) $\frac{1}{2}$ of 48 grams = $\frac{1}{2} \times 48 \text{ g} = 24 \text{ g}$

(b) $\frac{1}{3}$ of ₹ 99 = $\frac{1}{3} \times ₹ 99 = ₹ 33$

(c) $\frac{1}{2}$ of 60 minutes = $\frac{1}{2} \times 60 \text{ minutes} = 30 \text{ minutes}$

(d) $\frac{1}{3}$ of 72 ℓ = $\frac{1}{3} \times 72 \text{ ℓ} = 24 \text{ ℓ}$

Activity-2

1. (b) $\frac{1}{4}$, $\frac{2}{8}$, yes, the fractions are equivalent.

(c) $\frac{2}{6}, \frac{4}{12}$, yes, the fractions are equivalent.

(d) $\frac{1}{12}, \frac{1}{6}$, no, the fractions are not equivalent.

2. (b) $\frac{36}{40} = \frac{36 \div 4}{40 \div 4} = \frac{9}{10}$ (c) $\frac{25}{30} = \frac{25 \div 5}{30 \div 5} = \frac{5}{6}$

(d) $\frac{6}{7} = \frac{6 \times 7}{7 \times 7} = \frac{42}{49}$

3. (b) $\frac{3}{5} = \frac{3 \times 2}{5 \times 2} = \frac{6}{10}$; $\frac{3}{5} = \frac{3 \times 3}{5 \times 3} = \frac{9}{15}$, $\frac{3}{5} = \frac{3 \times 4}{5 \times 4} = \frac{12}{20}$, $\frac{3}{5} = \frac{3 \times 5}{5 \times 5} = \frac{15}{25}$

The first five fractions equivalent to $\frac{3}{5}$ are $\frac{3}{5}, \frac{6}{10}, \frac{9}{15}, \frac{12}{20}, \frac{15}{25}$.

(c) $\frac{2}{7} = \frac{2 \times 2}{7 \times 2} = \frac{4}{14}$, $\frac{2}{7} = \frac{2 \times 3}{7 \times 3} = \frac{6}{21}$, $\frac{2}{7} = \frac{2 \times 4}{7 \times 4} = \frac{8}{28}$, $\frac{2}{7} = \frac{2 \times 5}{7 \times 5} = \frac{10}{35}$

The first five fractions equivalent to $\frac{2}{7}$ are $\frac{2}{7}, \frac{4}{14}, \frac{6}{21}, \frac{8}{28}, \frac{10}{35}$.

(d) $\frac{5}{6} = \frac{5 \times 2}{6 \times 2} = \frac{10}{12}$, $\frac{5}{6} = \frac{5 \times 3}{6 \times 3} = \frac{15}{18}$, $\frac{5}{6} = \frac{5 \times 4}{6 \times 4} = \frac{20}{24}$, $\frac{5}{6} = \frac{5 \times 5}{6 \times 5} = \frac{25}{30}$

The first five fractions equivalent to $\frac{5}{6}$ are $\frac{5}{6}, \frac{10}{12}, \frac{15}{18}, \frac{20}{24}, \frac{25}{30}$.

(e) $\frac{4}{11} = \frac{4 \times 2}{11 \times 2} = \frac{8}{22}$, $\frac{4}{11} = \frac{4 \times 3}{11 \times 3} = \frac{12}{33}$, $\frac{4}{11} = \frac{4 \times 4}{11 \times 4} = \frac{16}{44}$, $\frac{4}{11} = \frac{4 \times 5}{11 \times 5} = \frac{20}{55}$

The first five fractions equivalent to $\frac{4}{11}$ are $\frac{4}{11}, \frac{8}{22}, \frac{12}{33}, \frac{16}{44}, \frac{20}{55}$.

(f) $\frac{7}{10} = \frac{7 \times 2}{10 \times 2} = \frac{14}{20}$, $\frac{7}{10} = \frac{7 \times 3}{10 \times 3} = \frac{21}{30}$, $\frac{7}{10} = \frac{7 \times 4}{10 \times 4} = \frac{28}{40}$, $\frac{7}{10} = \frac{7 \times 5}{10 \times 5} = \frac{35}{50}$

The first five fractions equivalent to $\frac{7}{10}$ are $\frac{7}{10}, \frac{14}{20}, \frac{21}{30}, \frac{28}{40}, \frac{35}{50}$.

(g) $\frac{1}{9} = \frac{1 \times 2}{9 \times 2} = \frac{2}{18}$, $\frac{1}{9} = \frac{1 \times 3}{9 \times 3} = \frac{3}{27}$, $\frac{1}{9} = \frac{1 \times 4}{9 \times 4} = \frac{4}{36}$, $\frac{1}{9} = \frac{1 \times 5}{9 \times 5} = \frac{5}{45}$

The first five fractions equivalent to $\frac{1}{9}$ are $\frac{1}{9}, \frac{2}{18}, \frac{3}{27}, \frac{4}{36}, \frac{5}{45}$.

4. (a) $\frac{21}{49} = \frac{3 \times 7}{7 \times 7}$, $\frac{9}{21} = \frac{3 \times 3}{7 \times 3}$, $\frac{3}{7} = \frac{3 \times 1}{7 \times 1}$, $\frac{12}{21} = \frac{3 \times 4}{7 \times 3}$

So, $\frac{12}{21}$ is not equivalent to others.

$$(b) \frac{15}{27} = \frac{5 \times 3}{9 \times 3}, \frac{5}{9} = \frac{5 \times 1}{9 \times 1}, \frac{10}{18} = \frac{5 \times 2}{9 \times 2}, \frac{45}{72} = \frac{5 \times 9}{9 \times 8}$$

So, $\frac{45}{72}$ is not equivalent to others.

$$(c) \frac{3}{4} = \frac{3 \times 1}{4 \times 1}, \frac{9}{12} = \frac{3 \times 3}{4 \times 3}, \frac{15}{20} = \frac{3 \times 5}{4 \times 5}, \frac{18}{20} = \frac{3 \times 6}{4 \times 5}$$

So, $\frac{18}{20}$ is not equivalent to others.

$$(d) \frac{14}{70} = \frac{1 \times 14}{5 \times 14}, \frac{1}{5} = \frac{1 \times 1}{5 \times 1}, \frac{3}{15} = \frac{1 \times 3}{5 \times 3}, \frac{6}{15} = \frac{1 \times 6}{5 \times 3}$$

So, $\frac{6}{15}$ is not equivalent to others.

$$5. (b) \frac{3}{7} = \frac{3 \times 6}{7 \times 6} = \frac{18}{42}$$

So, $\frac{18}{42}$ is an equivalent fraction of $\frac{3}{7}$ with denominator 42.

$$(c) \frac{3}{7} = \frac{3 \times 9}{7 \times 9} = \frac{27}{63}$$

So, $\frac{27}{63}$ is an equivalent fraction of $\frac{3}{7}$ with numerator 27.

$$(d) \frac{3}{7} = \frac{3 \times 11}{7 \times 11} = \frac{33}{77}$$

So, $\frac{33}{77}$ is an equivalent fraction of $\frac{3}{7}$ with denominator 77.

6. (a) Cross multiply the numerator of the 1st fraction with the denominator of the 2nd fraction and the denominator of the 1st fraction with the numerator of the 2nd fraction.

$$\text{We have, } \frac{3}{8} \text{ and } \frac{16}{24} \Rightarrow \begin{array}{ccc} \frac{3}{8} & \begin{array}{l} \nearrow \\ \searrow \end{array} & \frac{16}{24} \\ & & \end{array}$$

$$\Rightarrow 3 \times 24 = 72, 8 \times 16 = 128$$

So, $\frac{3}{8}$ and $\frac{16}{24}$ are not equivalent fractions.

$$(b) \frac{2}{5} \begin{array}{ccc} \nearrow & & \searrow \\ \searrow & & \nearrow \end{array} \frac{10}{25}$$

$\Rightarrow 2 \times 25 = 50, 5 \times 10 = 50 \therefore \frac{2}{5}$ and $\frac{10}{25}$ are equivalent fractions.

$$(c) \frac{6}{7} \begin{array}{ccc} \nearrow & & \searrow \\ \searrow & & \nearrow \end{array} \frac{42}{49}$$

$\Rightarrow 6 \times 49 = 294, 7 \times 42 = 294 \quad \therefore \frac{6}{7}$ and $\frac{42}{49}$ are equivalent fractions.

Activity-3

1. We first find the HCF of 48 and 64.

Factors of 48 are (1), (2), 3, (4), 6, (8), 12, (16), 24, 48.

Factors of 64 are (1), (2), (4), (8), (16), 32, 64.

Common factors are 1, 2, 4, 8, 16. \therefore HCF = 16

So, we divide 48 and 64 by 16.

$$\frac{48}{64} = \frac{48 \div 16}{64 \div 16} = \frac{3}{4}$$

Thus, $\frac{48}{64}$ in the lowest terms is $\frac{3}{4}$.

2. $\frac{15}{20} = \frac{15 \div 5}{20 \div 5} = \frac{3}{4}$ (HCF of 15 and 20 = 5)
3. $\frac{35}{45} = \frac{35 \div 5}{45 \div 5} = \frac{7}{9}$ (HCF of 35 and 45 = 5)
4. $\frac{49}{63} = \frac{49 \div 7}{63 \div 7} = \frac{7}{9}$ (HCF of 49 and 63 = 7)
5. $\frac{12}{18} = \frac{12 \div 6}{18 \div 6} = \frac{2}{3}$ (HCF of 12 and 18 = 6)
6. $\frac{36}{81} = \frac{36 \div 9}{81 \div 9} = \frac{4}{9}$ (HCF of 36 and 81 = 9)
7. $\frac{22}{121} = \frac{22 \div 11}{121 \div 11} = \frac{2}{11}$ (HCF of 22 and 121 = 11)
8. $\frac{42}{48} = \frac{42 \div 6}{48 \div 6} = \frac{7}{8}$ (HCF of 42 and 48 = 6)
9. $\frac{24}{32} = \frac{24 \div 8}{32 \div 8} = \frac{3}{4}$ (HCF of 24 and 32 = 8)
10. $\frac{85}{100} = \frac{85 \div 5}{100 \div 5} = \frac{17}{20}$ (HCF of 85 and 100 = 5)
11. $\frac{75}{80} = \frac{75 \div 5}{80 \div 5} = \frac{15}{16}$ (HCF of 75 and 80 = 5)
12. $\frac{25}{40} = \frac{25 \div 5}{40 \div 5} = \frac{5}{8}$ (HCF of 25 and 40 = 5)

Activity-4

1. $\frac{2}{7}$, $\frac{4}{7}$, $\frac{6}{7}$, $\frac{11}{7}$ and $\frac{3}{7}$ are all like fractions with common denominator 7.
2. (a) numerator < denominator, it is a proper fraction.
 (b) numerator > denominator, it is an improper fraction.
 (c) numerator < denominator, it is a proper fraction.
 (d) numerator > denominator, it is an improper fraction.
 (e) numerator < denominator, it is a proper fraction.
 (f) numerator < denominator, it is a proper fraction.
 (g) numerator < denominator, it is a proper fraction.
 (h) numerator > denominator, it is an improper fraction.
 (i) numerator < denominator, it is a proper fraction.
 (j) numerator > denominator, it is an improper fraction.
3. (a) On dividing 15 by 7, we get 2 as quotient and 1 as remainder.

$$\text{So, } \frac{15}{7} = 2\frac{1}{7} \quad \begin{array}{r} 2 \\ 7 \overline{) 15} \\ \underline{-14} \\ 1 \end{array}$$

$$\text{(b) } \frac{8}{3} = 2\frac{2}{3} \quad \begin{array}{r} 2 \\ 3 \overline{) 8} \\ \underline{-6} \\ 2 \end{array}$$

$$\text{(c) } \frac{18}{4} = 4\frac{2}{4} \quad \begin{array}{r} 4 \\ 4 \overline{) 18} \\ \underline{-16} \\ 2 \end{array}$$

$$\text{(d) } \frac{25}{6} = 4\frac{1}{6} \quad \begin{array}{r} 4 \\ 6 \overline{) 25} \\ \underline{-24} \\ 1 \end{array}$$

$$\text{(e) } \frac{44}{5} = 8\frac{4}{5} \quad \begin{array}{r} 8 \\ 5 \overline{) 44} \\ \underline{-40} \\ 4 \end{array}$$

$$\text{(f) } \frac{35}{6} = 5\frac{5}{6} \quad \begin{array}{r} 5 \\ 6 \overline{) 35} \\ \underline{-30} \\ 5 \end{array}$$

$$\text{(g) } \frac{17}{2} = 8\frac{1}{2} \quad \begin{array}{r} 8 \\ 2 \overline{) 17} \\ \underline{-16} \\ 1 \end{array}$$

$$\text{(h) } \frac{54}{5} = 10\frac{4}{5} \quad \begin{array}{r} 10 \\ 5 \overline{) 54} \\ \underline{-50} \\ 4 \\ \underline{-0} \\ 4 \end{array}$$

$$\text{(i) } \frac{92}{11} = 8\frac{4}{11} \quad \begin{array}{r} 8 \\ 11 \overline{) 92} \\ \underline{-88} \\ 4 \end{array}$$

$$\text{(j) } \frac{80}{7} = 11\frac{3}{7} \quad \begin{array}{r} 11 \\ 7 \overline{) 80} \\ \underline{-77} \\ 3 \\ \underline{-0} \\ 3 \end{array}$$

4. (a) $1\frac{2}{3} = \frac{3 \times 1 + 2}{3} = \frac{3+2}{3} = \frac{5}{3}$
- (b) $3\frac{3}{5} = \frac{5 \times 3 + 3}{5} = \frac{15+3}{5} = \frac{18}{5}$
- (c) $2\frac{2}{7} = \frac{7 \times 2 + 2}{7} = \frac{14+2}{7} = \frac{16}{7}$
- (d) $4\frac{1}{2} = \frac{2 \times 4 + 1}{2} = \frac{8+1}{2} = \frac{9}{2}$
- (e) $2\frac{1}{9} = \frac{9 \times 2 + 1}{9} = \frac{18+1}{9} = \frac{19}{9}$
- (f) $8\frac{3}{4} = \frac{4 \times 8 + 3}{4} = \frac{32+3}{4} = \frac{35}{4}$
- (g) $7\frac{2}{5} = \frac{5 \times 7 + 2}{5} = \frac{35+2}{5} = \frac{37}{5}$
- (h) $9\frac{3}{7} = \frac{7 \times 9 + 3}{7} = \frac{63+3}{7} = \frac{66}{7}$
- (i) $5\frac{7}{9} = \frac{9 \times 5 + 7}{9} = \frac{45+7}{9} = \frac{52}{9}$
- (j) $6\frac{5}{8} = \frac{8 \times 6 + 5}{8} = \frac{48+5}{8} = \frac{53}{8}$

Activity-5

1. (a) $\frac{3}{7} < \frac{5}{7}$, The fraction with greater numerator is greater for like fractions.
- (b) $\frac{11}{12} > \frac{10}{12}$ (c) $\frac{4}{5} = \frac{4}{5}$
- (d) $\frac{3}{7} < \frac{3}{5}$, The fraction with smaller denominator is greater for unlike fractions with same numerator.
- (e) $\frac{16}{5} < \frac{16}{3}$ (f) $\frac{1}{12} < \frac{1}{6}$ (g) $\frac{2}{3} < \frac{4}{5}$, $10 < 12$, so, $\frac{2}{3} < \frac{4}{5}$
- (h) $\frac{5}{9} < \frac{20}{23}$, $115 < 180$, so, $\frac{5}{9} < \frac{20}{23}$

2. (a) The fraction with greater numerator is greater for like fractions.

$$\therefore \frac{1}{7} < \frac{2}{7} < \frac{3}{7} < \frac{4}{7} < \frac{6}{7}$$

(b) The fraction with smaller denominator is greater for unlike fractions with same numerator.

$$\therefore \frac{5}{12} < \frac{5}{9} < \frac{5}{7} < \frac{5}{6} < \frac{5}{3}$$

(c) $\frac{1}{3}$, $\frac{5}{6}$, $\frac{7}{12}$, $\frac{3}{4}$, $\frac{1}{2}$ are unlike fractions. So, we convert them into like fractions.

Multiples of 3 are 3, 6, 9, (12), 15, 18.

Multiples of 6 are 6, (12), 18, 24, 30, 36.

Multiples of 12 are (12), 24, 36, 48, 60, 72.

Multiples of 4 are 4, 8, (12), 16, 20, 24.

Multiples of 2 are 2, 4, 6, 8, 10, (12).

LCM of 3, 6, 12, 4 and 2 is 12.

$$\frac{1}{3} = \frac{1 \times 4}{3 \times 4} = \frac{4}{12}, \quad \frac{5}{6} = \frac{5 \times 2}{6 \times 2} = \frac{10}{12}, \quad \frac{7}{12} = \frac{7 \times 1}{12 \times 1} = \frac{7}{12},$$

$$\frac{3}{4} = \frac{3 \times 3}{4 \times 3} = \frac{9}{12}, \quad \frac{1}{2} = \frac{1 \times 6}{2 \times 6} = \frac{6}{12}.$$

$$\text{Now } \frac{4}{12} < \frac{6}{12} < \frac{7}{12} < \frac{9}{12} < \frac{10}{12}$$

$$\therefore \frac{1}{3} < \frac{1}{2} < \frac{7}{12} < \frac{3}{4} < \frac{5}{6}$$

(d) $\frac{4}{6}$, $\frac{9}{15}$, $\frac{2}{5}$, $\frac{7}{10}$, $\frac{1}{6}$ are unlike fractions, so, we convert them into like fractions.

Multiples of 6 are 6, 12, 18, 24, (30), 36.

Multiples of 15 are 15, (30), 45, 60, 75, 90.

Multiples of 5 are 5, 10, 15, 20, 25, (30).

Multiples of 10 are 10, 20, (30), 40, 50, 60.

Multiples of 6 are 6, 12, 18, 24, (30), 36.

\therefore LCM = 30

$$\frac{4}{6} = \frac{4 \times 5}{6 \times 5} = \frac{20}{30}, \quad \frac{9}{15} = \frac{9 \times 2}{15 \times 2} = \frac{18}{30}, \quad \frac{2}{5} = \frac{2 \times 6}{5 \times 6} = \frac{12}{30},$$

$$\frac{7}{10} = \frac{7 \times 3}{10 \times 3} = \frac{21}{30}, \quad \frac{1}{6} = \frac{1 \times 5}{6 \times 5} = \frac{5}{30}.$$

$$\text{So, } \frac{5}{30} < \frac{12}{30} < \frac{18}{30} < \frac{20}{30} < \frac{21}{30}$$

$$\therefore \frac{1}{6} < \frac{2}{5} < \frac{9}{15} < \frac{4}{6} < \frac{7}{10}$$

$$3. \text{ (a) } \frac{6}{7} > \frac{5}{7} > \frac{4}{7} > \frac{3}{7} > \frac{1}{7} \quad (\because 6 > 5 > 4 > 3 > 1)$$

(b) $\frac{5}{6}, \frac{3}{9}, \frac{17}{36}, \frac{9}{4}$ are unlike fractions, so, we convert them into like fractions.

LCM of 6, 9, 36, 4 = 36

$$\frac{5}{6} = \frac{5 \times 6}{6 \times 6} = \frac{30}{36}, \quad \frac{3}{9} = \frac{3 \times 4}{9 \times 4} = \frac{12}{36}, \quad \frac{17}{36} = \frac{17 \times 1}{36 \times 1} = \frac{17}{36},$$

$$\frac{9}{4} = \frac{9 \times 9}{4 \times 9} = \frac{81}{36}.$$

$$\therefore \frac{81}{36} > \frac{30}{36} > \frac{17}{36} > \frac{12}{36} \quad \text{or} \quad \frac{9}{4} > \frac{5}{6} > \frac{17}{36} > \frac{3}{9}$$

$$(c) \frac{8}{3} > \frac{8}{5} > \frac{8}{6} > \frac{8}{7} > \frac{8}{9} \quad (\because 3 < 5 < 6 < 7 < 9)$$

(d) $\frac{1}{3}, \frac{3}{6}, \frac{4}{9}, \frac{3}{18}$ are unlike fractions, so, we convert them into like fractions.

LCM of 3, 6, 9, 18 = 18

$$\frac{1}{3} = \frac{1 \times 6}{3 \times 6} = \frac{6}{18}, \quad \frac{3}{6} = \frac{3 \times 3}{6 \times 3} = \frac{9}{18}, \quad \frac{4}{9} = \frac{4 \times 2}{9 \times 2} = \frac{8}{18},$$

$$\frac{3}{18} = \frac{3 \times 1}{18 \times 1} = \frac{3}{18}.$$

$$\text{So, } \frac{9}{18} > \frac{8}{18} > \frac{6}{18} > \frac{3}{18} \quad \text{or} \quad \frac{3}{6} > \frac{4}{9} > \frac{1}{3} > \frac{3}{18}$$

Activity-6

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

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

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) $\frac{13}{19} + \frac{5}{19} = \frac{13+5}{19} = \frac{18}{19}$

(d) $\frac{5}{21} + \frac{10}{21} = \frac{5+10}{21} = \frac{15}{21}$. But $\frac{15}{21}$ is not in the lowest terms.

So, $\frac{15}{21} = \frac{15 \div 3}{21 \div 3} = \frac{5}{7}$ (HCF of 15 and 21 = 3)

Thus, $\frac{5}{21} + \frac{10}{21} = \frac{5}{7}$

(e) $\frac{7}{16} + \frac{5}{16} = \frac{7+5}{16} = \frac{12}{16} \because$ HCF of 12 and 16 = 4.

Now, $\frac{12}{16} = \frac{12 \div 4}{16 \div 4} = \frac{3}{4}$. Thus, $\frac{7}{16} + \frac{5}{16} = \frac{3}{4}$

(f) $\frac{3}{17} + \frac{1}{17} = \frac{3+1}{17} = \frac{4}{17}$

(g) $\frac{3}{10} + \frac{4}{15} = \frac{9}{30} + \frac{8}{30}$
 $= \frac{9+8}{30} = \frac{17}{30}$

$$\left[\begin{array}{l} \text{LCM of 10 and 15} = 30 \\ \frac{3}{10} = \frac{3 \times 3}{10 \times 3} = \frac{9}{30}, \\ \frac{4}{15} = \frac{4 \times 2}{15 \times 2} = \frac{8}{30} \end{array} \right]$$

Thus, $\frac{3}{10} + \frac{4}{15} = \frac{17}{30}$

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

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

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

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

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

Now, $\frac{8}{12} = \frac{8 \div 4}{12 \div 4} = \frac{2}{3}$

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

(HCF of 8 and 12 = 4)

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

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

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) $\frac{5}{14} + \frac{7}{14} + \frac{1}{14} = \frac{5+7+1}{14} = \frac{13}{14}$

(b) $\frac{1}{10} + \frac{3}{10} + \frac{2}{10} = \frac{1+3+2}{10} = \frac{6}{10}$

Now, $\frac{6}{10} = \frac{6 \div 2}{10 \div 2} = \frac{3}{5}$

$\therefore \frac{1}{10} + \frac{3}{10} + \frac{2}{10} = \frac{3}{5}$

(c) $\frac{7}{24} + \frac{5}{24} + \frac{6}{24} = \frac{7+5+6}{24} = \frac{18}{24}$

Now, $\frac{18}{24} = \frac{18 \div 6}{24 \div 6} = \frac{3}{4}$ (HCF of 18 and 24 = 6)

(d) $\frac{1}{18} + \frac{5}{18} + \frac{8}{18} = \frac{1+5+8}{18} = \frac{14}{18}$

Now, $\frac{14}{18} = \frac{14 \div 2}{18 \div 2} = \frac{7}{9}$ (HCF of 14 and 18 = 2)

(e) $\frac{3}{7} + \frac{6}{7} + \frac{2}{5} = \frac{15}{35} + \frac{30}{35} + \frac{14}{35}$

$$= \frac{15+30+14}{35}$$

$$= \frac{59}{35} = 1\frac{24}{35}$$

$$\left[\begin{array}{l} \therefore \text{LCM of 7, 7 and 5} = 35 \\ \frac{3}{7} = \frac{3 \times 5}{7 \times 5} = \frac{15}{35}' \\ \frac{6}{7} = \frac{6 \times 5}{7 \times 5} = \frac{30}{35}' \\ \frac{2}{5} = \frac{2 \times 7}{5 \times 7} = \frac{14}{35} \end{array} \right]$$

(f) $\frac{1}{12} + \frac{5}{9} + \frac{2}{36} = \frac{3}{36} + \frac{20}{36} + \frac{2}{36}$

$$= \frac{3+20+2}{36}$$

$$= \frac{25}{36}$$

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

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

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

$$= \frac{12+10+14}{42}$$

$$= \frac{36}{42}$$

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

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

$$(h) \frac{2}{7} + \frac{3}{4} + \frac{1}{28} = \frac{8}{28} + \frac{21}{28} + \frac{1}{28} \quad \left[\begin{array}{l} \because \text{LCM of } 7, 4, 28 = 28 \\ \frac{2}{7} = \frac{2 \times 4}{7 \times 4} = \frac{8}{28} \\ \frac{3}{4} = \frac{3 \times 7}{4 \times 7} = \frac{21}{28} \\ \frac{1}{28} = \frac{1 \times 1}{28 \times 1} = \frac{1}{28} \end{array} \right]$$

$$= \frac{8+21+1}{28}$$

$$= \frac{30}{28}$$

Now, $\frac{30}{28} = \frac{30 \div 2}{28 \div 2} = \frac{15}{14}$ (HCF of 30 and 28 = 2)

$\frac{15}{14}$ is an improper fraction, so, convert it into mixed fraction.

$$\frac{15}{14} = 1 \frac{1}{14} \quad \therefore \frac{2}{7} + \frac{3}{4} + \frac{1}{28} = 1 \frac{1}{14}$$

Activity-7

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

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

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

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

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

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

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

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

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

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

$$2. (a) \frac{12}{13} - \frac{\boxed{9}}{13} = \frac{3}{13}$$

$$(c) \frac{5}{9} - \frac{4}{9} = \frac{1}{\boxed{9}}$$

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

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

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

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

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

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

$$(e) \frac{6}{7} - \frac{5}{6} = \frac{36}{42} - \frac{35}{42} \\ = \frac{36-35}{42} \\ = \frac{1}{42}$$

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

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

$$(b) \frac{17}{21} - \frac{11}{\boxed{21}} = \frac{6}{21}$$

$$(d) \frac{\boxed{7}}{15} - \frac{4}{\boxed{15}} = \frac{3}{15}$$

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

$$\left[\begin{array}{l} \text{LCM of 8 and 4} = 8 \\ \frac{5}{8} = \frac{5}{8}, \frac{1}{4} = \frac{1 \times 2}{4 \times 2} = \frac{2}{8} \end{array} \right]$$

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

(HCF of 2 and 10 = 2)

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

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

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

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

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

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

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

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

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

$$\begin{aligned} \text{(i)} \quad \frac{8}{25} - \frac{1}{10} &= \frac{16}{50} - \frac{5}{50} \\ &= \frac{16-5}{50} = \frac{11}{50} \end{aligned}$$

$$\therefore \frac{8}{25} - \frac{1}{10} = \frac{11}{50}$$

$$\begin{aligned} \text{(j)} \quad \frac{4}{5} - \frac{8}{15} &= \frac{12}{15} - \frac{8}{15} \\ &= \frac{12-8}{15} = \frac{4}{15} \end{aligned}$$

$$\begin{aligned} \text{(k)} \quad \frac{9}{16} - \frac{5}{12} &= \frac{27}{48} - \frac{20}{48} \\ &= \frac{27-20}{48} = \frac{7}{48} \end{aligned}$$

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

(HCF of 2 and 12 = 2)

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

(HCF of 2 and 48 = 2)

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

$$\left[\begin{array}{l} \text{LCM of 25 and 10} = 50 \\ \frac{8}{25} = \frac{8 \times 2}{25 \times 2} = \frac{16}{50} \\ \frac{1}{10} = \frac{1 \times 5}{10 \times 5} = \frac{5}{50} \end{array} \right]$$

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

$$\left[\begin{array}{l} \text{LCM of 16 and 12} = 48 \\ \frac{9}{16} = \frac{9 \times 3}{16 \times 3} = \frac{27}{48} \\ \frac{5}{12} = \frac{5 \times 4}{12 \times 4} = \frac{20}{48} \end{array} \right]$$

$$(i) \frac{15}{8} - \frac{5}{24} = \frac{45}{24} - \frac{5}{24}$$

$$= \frac{45-5}{24} = \frac{40}{24}$$

$$\left[\text{LCM of 8 and 24} = 24 \right]$$

$$\frac{15}{8} = \frac{15 \times 3}{8 \times 3} = \frac{45}{24}$$

$$\text{Now, } \frac{40}{24} = \frac{40 \div 8}{24 \div 8} = \frac{5}{3}$$

(HCF of 40 and 24 = 8)

$$\text{Also, } \frac{5}{3} = 1\frac{2}{3}$$

$$\therefore \frac{15}{8} - \frac{5}{24} = 1\frac{2}{3}$$

Activity - 8

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

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

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

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

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

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

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

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

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

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

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

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

Activity - 9

1. Rohit spent $\frac{1}{3}$ of his money on food and $\frac{1}{4}$ of his money on books.

Total money spent by Rohit = $\left(\frac{1}{3} + \frac{1}{4}\right)$ of the money

$$\text{LCM of 3 and 4} = 12, \therefore \frac{1}{3} = \frac{1 \times 4}{3 \times 4} = \frac{4}{12}, \quad \frac{1}{4} = \frac{1 \times 3}{4 \times 3} = \frac{3}{12}$$

$$\therefore \frac{1}{3} + \frac{1}{4} = \frac{4}{12} + \frac{3}{12} = \frac{4+3}{12} = \frac{7}{12}$$

\therefore Rohit spent $\frac{7}{12}$ of the money.

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

LCM of 5 and 2 = 10.

$$\frac{2}{5} = \frac{2 \times 2}{5 \times 2} = \frac{4}{10}, \quad \frac{1}{2} = \frac{1 \times 5}{2 \times 5} = \frac{5}{10}$$

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

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

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

$$\begin{aligned} \text{Total time taken by Jyoti} &= \left(\frac{1}{6} + \frac{3}{10} \right) \text{ hour} \\ &= \left(\frac{5}{30} + \frac{9}{30} \right) \text{ hour} \\ &= \left(\frac{5+9}{30} \right) \text{ hour} \\ &= \frac{14}{30} \text{ hour (HCF of 14 and 30 = 2)} \\ &= \frac{7}{15} \text{ hour} \end{aligned} \quad \left[\begin{array}{l} \text{LCM of 6 and 10 = 30} \\ \frac{1}{6} = \frac{1 \times 5}{6 \times 5} = \frac{5}{30}, \\ \frac{3}{10} = \frac{3 \times 3}{10 \times 3} = \frac{9}{30} \end{array} \right]$$

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

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

∴ Total weight of the packets of snacks is 6 kg.

5. Total quantity of milk = $\left(\frac{1}{4} + \frac{3}{8} + \frac{9}{16} \right) \ell$
- $$\begin{aligned} &= \left(\frac{4}{16} + \frac{6}{16} + \frac{9}{16} \right) \ell \\ &= \left(\frac{4+6+9}{16} \right) \ell = \frac{19}{16} \ell \\ &= 1 \frac{3}{16} \ell \end{aligned} \quad \left[\begin{array}{l} \text{LCM of 4, 8, 16 = 16} \\ \frac{1}{4} = \frac{1 \times 4}{4 \times 4} = \frac{4}{16}, \\ \frac{3}{8} = \frac{3 \times 2}{8 \times 2} = \frac{6}{16} \end{array} \right]$$

Hence, total quantity of milk with the milkman is $1 \frac{3}{16} \ell$.

Mental Maths Corner

1. (a) (ii) (b) (iii) (c) (iii)
2. (a) 2 (b) 6 hours (c) improper fraction
- (d) $\frac{2}{6}$, $\frac{3}{9}$ and $\frac{4}{12}$
3. (a) > (b) = (c) > (d) >

Review Exercise

1. (a) $\frac{2}{3} = \frac{2 \times 9}{3 \times 9} = \frac{18}{27}$ (Multiplying by 9 to make the numerator 18)

So, $\frac{18}{27}$ is an equivalent fraction of $\frac{2}{3}$ with numerator 18.

(b) $\frac{3}{5} = \frac{3 \times 6}{5 \times 6} = \frac{18}{30}$ (Multiplying by 6 to make the numerator 18)

So, $\frac{18}{30}$ is an equivalent fraction of $\frac{3}{5}$ with numerator 18.

(c) $\frac{6}{7} = \frac{6 \times 3}{7 \times 3} = \frac{18}{21}$ (Multiplying by 3 to make the numerator 18)

So, $\frac{18}{21}$ is an equivalent fraction of $\frac{6}{7}$ with numerator 18.

(d) $\frac{9}{11} = \frac{9 \times 2}{11 \times 2} = \frac{18}{22}$ (Multiplying by 2 to make the numerator 18)

So, $\frac{18}{22}$ is an equivalent fraction of $\frac{9}{11}$ with numerator 18.

2. (a) $\frac{18}{30} = \frac{18 \div 6}{30 \div 6} = \frac{3}{5}$ (HCF of 18 and 30 = 6)

(b) $\frac{40}{60} = \frac{40 \div 20}{60 \div 20} = \frac{2}{3}$ (HCF of 40 and 60 = 20)

(c) $\frac{35}{42} = \frac{35 \div 7}{42 \div 7} = \frac{5}{6}$ (HCF of 35 and 42 = 7)

(d) $\frac{64}{100} = \frac{64 \div 4}{100 \div 4} = \frac{16}{25}$ (HCF of 64 and 100 = 4)

3. (a) $\frac{21}{13} = 1 \frac{8}{13}$

$$\begin{array}{r} 13 \overline{) 21} \\ \underline{-13} \\ 8 \end{array}$$

(b) $\frac{19}{12} = 1 \frac{7}{12}$

$$\begin{array}{r} 12 \overline{) 19} \\ \underline{-12} \\ 7 \end{array}$$

$$(c) \frac{9}{4} = 2\frac{1}{4} \quad \begin{array}{r} 4 \overline{) 9} \\ \underline{-8} \\ 1 \end{array}$$

$$(d) \frac{28}{15} = 1\frac{13}{15} \quad \begin{array}{r} 15 \overline{) 28} \\ \underline{-15} \\ 13 \end{array}$$

$$4. (a) 1\frac{5}{6} = \frac{6 \times 1 + 5}{6} = \frac{6+5}{6} = \frac{11}{6}$$

$$(b) 5\frac{4}{9} = \frac{9 \times 5 + 4}{9} = \frac{45+4}{9} = \frac{49}{9}$$

$$(c) 4\frac{3}{7} = \frac{7 \times 4 + 3}{7} = \frac{28+3}{7} = \frac{31}{7}$$

$$(d) 2\frac{11}{15} = \frac{15 \times 2 + 11}{15} = \frac{30+11}{15} = \frac{41}{15}$$

$$5. (a) \frac{3}{5} - \frac{1}{5} = \frac{3-1}{5} = \frac{2}{5}$$

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

$$(c) \frac{1}{2} + \frac{2}{3} = \frac{3}{6} + \frac{4}{6} \\ = \frac{3+4}{6} = \frac{7}{6}$$

$$= 1\frac{1}{6} \text{ (converting improper fraction into mixed fraction)}$$

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

$$(d) \frac{9}{14} - \frac{3}{7} = \frac{9}{14} - \frac{6}{14} \\ = \frac{9-6}{14} = \frac{3}{14}$$

$$\left[\begin{array}{l} \text{LCM of 14 and 7} = 14 \\ \frac{3}{7} = \frac{3 \times 2}{7 \times 2} = \frac{6}{14} \end{array} \right]$$

$$(e) \frac{1}{12} - \frac{1}{20} = \frac{5}{60} - \frac{3}{60} \\ = \frac{5-3}{60} = \frac{2}{60} \\ = \frac{1}{30} \text{ (dividing by 2 as it is HCF of 2 and 60)}$$

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

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

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

$$(g) 3 \times \frac{7}{15} = \frac{21}{15} = \frac{7}{5} = 1\frac{2}{5} \quad (h) 15 \times \frac{3}{5} = \frac{15 \times 3}{5} = \frac{45}{5} = 9$$

HOTS

Total money spent on books and notebooks

$$= \left(\frac{1}{2} + \frac{1}{3} \right) \text{ of the money}$$

$$= \left(\frac{3}{6} + \frac{2}{6} \right) \text{ of the money}$$

$$= \frac{3+2}{6} = \frac{5}{6} \text{ of the money}$$

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

$$\text{Now, } \frac{1}{6} \text{ of the money} = ₹ 50 \therefore \text{ Total money} = ₹ 50 \times 6 = ₹ 300$$

Maths Lab Activity

(b) The space occupied by white pieces

$$= \frac{\text{Number of squares occupied by white pieces}}{\text{Total number of squares}} = \frac{16}{64} = \frac{1}{4}$$

(c) The space occupied by both kings

$$= \frac{\text{Number of squares occupied by two kings}}{\text{Total number of squares}} = \frac{2}{64} = \frac{1}{32}$$

(d) The space occupied by all pieces

$$= \frac{\text{Number of squares occupied by all pieces}}{\text{Total number of squares}} = \frac{32}{64} = \frac{1}{2}$$