

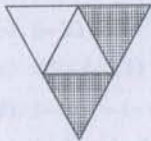
Learn and Remember

1. Fraction means a part of a group or a region. $\frac{5}{12}$ is a fraction. 5 is numerator and 12 is denominator.
2. Proper fraction is the fraction where numerator is less than denominator.
3. Improper fraction is the fraction where the numerator is more than denominator.
4. Mixed fraction is the fraction with an integer and proper fraction.
5. To find an equivalent fraction of a given fraction, you may multiply both the numerator and the denominator of the given fraction by the same number.
6. If we divide both numerator and denominator by same number, the fraction become same.
7. A fraction is said to be in the simplest form if its numerator and denominator have no common factor except 1.
8. Fractions with same denominators are called like fractions.
9. Two fraction can be added or subtracted untill they have common denominator.

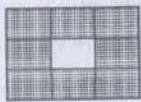
TEXTBOOK QUESTIONS SOLVED

EXERCISE 7.1

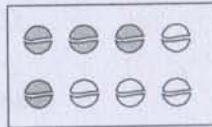
Q1. Write the fraction representing the shaded portion.



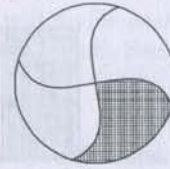
(i)



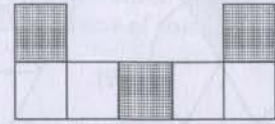
(ii)



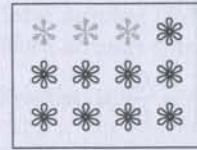
(iii)



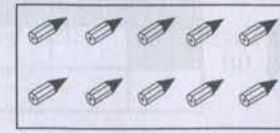
(iv)



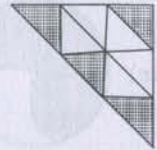
(v)



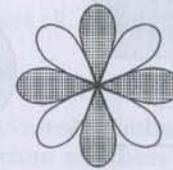
(vi)



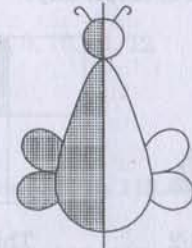
(vii)



(viii)



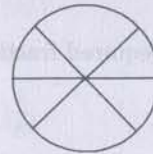
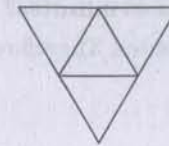
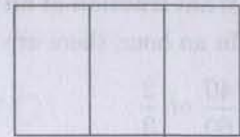
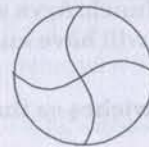
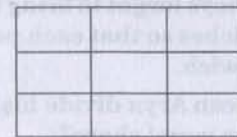
(ix)

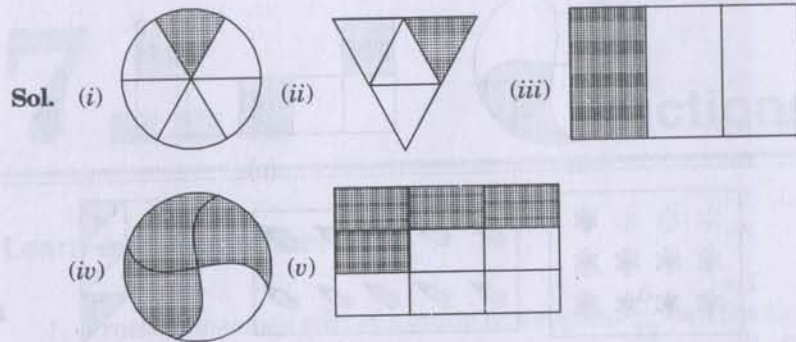


(x)

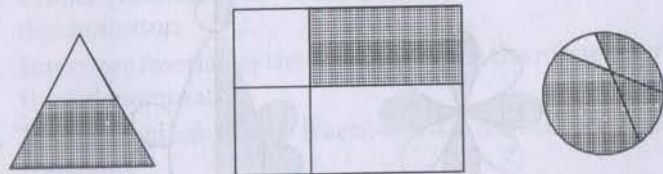
Sol. (i) $\frac{2}{4}$ (ii) $\frac{8}{9}$ (iii) $\frac{4}{8}$ (iv) $\frac{1}{4}$ (v) $\frac{3}{7}$
 (vi) $\frac{3}{12}$ (vii) $\frac{10}{10}$ (viii) $\frac{4}{9}$ (ix) $\frac{4}{8}$ (x) $\frac{1}{2}$

Q2. Colour the part according to the given fraction:

(i) $\frac{1}{6}$ (ii) $\frac{1}{4}$ (iii) $\frac{1}{3}$ (iv) $\frac{3}{4}$ (v) $\frac{4}{9}$



Q3. Identify the error, if any?



This is $\frac{1}{2}$

This is $\frac{1}{4}$

This is $\frac{3}{4}$

Sol. The main error in figures are not equally divided. For the fraction it is necessary that figure is to be divided in equal parts.

Q4. What fraction of a day is 8 hours?

Sol. In a day, there are 24 hours. Therefore the fraction of 8 hours is

$$= \frac{8}{24} \text{ or } \frac{1}{3}$$

Q5. What fraction of an hour is 40 minutes?

Sol. In an hour, there are 60 minutes. Therefore the required fraction is

$$\frac{40}{60} \text{ or } \frac{2}{3}$$

Q6. Arya, Abhimanyu, and Vivek shared lunch. Arya has brought two sandwiches, one made of vegetable and one of jam. The other two boys forgot to bring their lunch. Arya agreed to share his sandwiches so that each person will have an equal share of each sandwich.

(a) How can Arya divide his sandwiches so that each person has an equal share?

(b) What part of a sandwich will each boy receive?

Sol. (a) Arya will divide each Sandwich into three equal parts, and give one part of each Sandwich to each one of them.

$$(b) 1 \times \frac{1}{3} = \frac{1}{3}$$

Q7. Kanchan dyes dresses. She had to dye 30 dresses. She has so far finished 20 dresses. What fraction of dresses has she finished?

Sol. Total number of dresses = 30

Work already finished = 20

$$\text{Fraction} = \frac{20}{30} = \frac{20 \div 10}{30 \div 10} = \frac{2}{3}$$

Q8. Write the natural numbers from 2 to 12. What fraction of them are prime numbers?

Sol. Natural numbers : 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12

Prime numbers : 2, 3, 5, 7, 11

$$\text{Fraction} : \frac{5}{11}$$

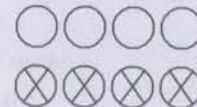
Q9. Write the natural numbers from 102 to 113. What fraction of them are prime numbers?

Sol. Natural numbers : 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113

Prime numbers : 103, 107, 109, 113

$$\text{Fraction} = \frac{4}{12}$$

Q10. What fraction of these circles have 'X's in them?



$$\text{Sol. } \frac{4}{8}$$

Q11. Kristin received a CD player for her birthday. She bought 3 CDs and received 5 others as gifts. What fraction of her total CDs did she buy and what fraction did she receive as gifts?

Sol. Total CDs = 3 + 5 = 8

No. of CDs purchased = 3

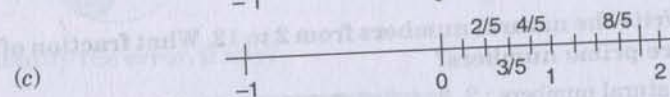
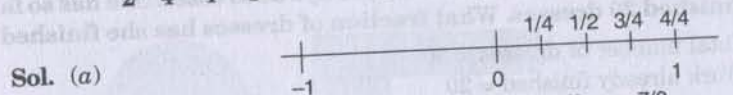
$$\text{Fraction of CDs purchased} = \frac{3}{8}$$

$$\text{Fraction of receive as gifts} = \frac{5}{8}$$

EXERCISE 7.2

Q1. Draw number lines and locate the points on them.

(a) $\frac{1}{2}, \frac{1}{4}, \frac{3}{4}, \frac{4}{4}$ (b) $\frac{1}{8}, \frac{2}{8}, \frac{3}{8}, \frac{7}{8}$ (c) $\frac{2}{5}, \frac{3}{5}, \frac{8}{5}, \frac{4}{5}$



Q2. Express the following as mixed fractions:

(a) $\frac{20}{3}$ (b) $\frac{11}{5}$ (c) $\frac{17}{7}$

(d) $\frac{28}{5}$ (e) $\frac{19}{6}$ (f) $\frac{35}{9}$

Sol. (a)
$$\begin{array}{r} 6 \\ 3 \overline{)20} \\ \underline{18} \\ 2 \end{array}$$

$$\therefore \frac{20}{3} = 6\frac{2}{3}$$

(c)
$$\begin{array}{r} 2 \\ 7 \overline{)17} \\ \underline{14} \\ 3 \end{array}$$

$$\therefore \frac{17}{7} = 2\frac{3}{7}$$

(e)
$$\begin{array}{r} 3 \\ 6 \overline{)19} \\ \underline{18} \\ 1 \end{array}$$

$$\therefore \frac{19}{6} = 3\frac{1}{6}$$

(b)
$$\begin{array}{r} 2 \\ 5 \overline{)11} \\ \underline{10} \\ 1 \end{array}$$

$$\therefore \frac{11}{5} = 2\frac{1}{5}$$

(d)
$$\begin{array}{r} 5 \\ 5 \overline{)28} \\ \underline{25} \\ 3 \end{array}$$

$$\therefore \frac{28}{5} = 5\frac{3}{5}$$

(f)
$$\begin{array}{r} 3 \\ 9 \overline{)35} \\ \underline{27} \\ 8 \end{array}$$

$$\therefore \frac{35}{9} = 3\frac{8}{9}$$

Q3. Express the following as improper fractions:

(a) $7\frac{3}{4}$

(b) $5\frac{6}{7}$

(c) $2\frac{5}{6}$

(d) $10\frac{3}{5}$

(e) $9\frac{3}{7}$

(f) $8\frac{4}{9}$

Sol. (a) $7\frac{3}{4} = \frac{(7 \times 4) + 3}{4} = \frac{31}{4}$

(b) $5\frac{6}{7} = \frac{(5 \times 7) + 6}{7} = \frac{41}{7}$

(c) $2\frac{5}{6} = \frac{(2 \times 6) + 5}{6} = \frac{17}{6}$

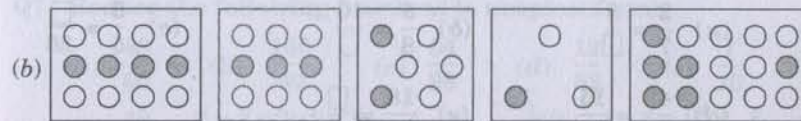
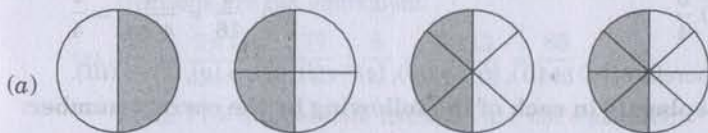
(d) $10\frac{3}{5} = \frac{(10 \times 5) + 3}{5} = \frac{53}{5}$

(e) $9\frac{3}{7} = \frac{(9 \times 7) + 3}{7} = \frac{66}{7}$

(f) $8\frac{4}{9} = \frac{(8 \times 9) + 4}{9} = \frac{76}{9}$

EXERCISE 7.3

Q1. Write the fractions. Are all these fractions equivalent?



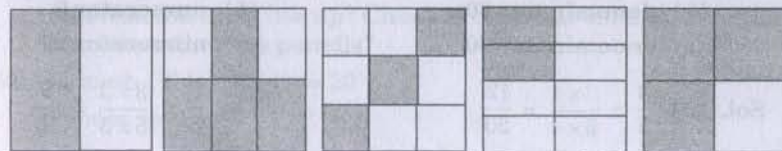
Sol. (a) $\frac{1}{2}, \frac{2}{4}, \frac{3}{6}, \frac{4}{8}$

Yes, all of these are equal.

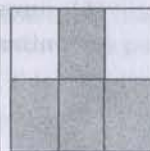
(b) $\frac{4}{12}, \frac{3}{9}, \frac{2}{6}, \frac{1}{3}, \frac{6}{15}$

No, they are not equal.

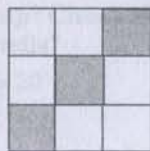
Q2. Write the fractions and pair up the equivalent fractions from each row.



(a)



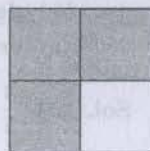
(b)



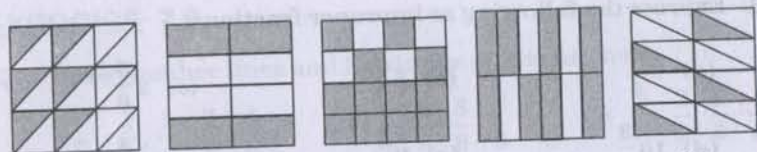
(c)



(d)



(e)



(i) (ii) (iii) (iv) (v)

Sol. (a) $\frac{1}{2}$ (i) $\frac{6}{18} = \frac{2 \times 3}{2 \times 3 \times 3} = \frac{1}{3}$
 (b) $\frac{4}{6} = \frac{2 \times 2}{3 \times 2} = \frac{2}{3}$ (ii) $\frac{4}{8} = \frac{2 \times 2}{2 \times 2 \times 2} = \frac{1}{2}$
 (c) $\frac{3}{9} = \frac{3 \times 1}{3 \times 3} = \frac{1}{3}$ (iii) $\frac{12}{16} = \frac{4 \times 3}{4 \times 4} = \frac{3}{4}$
 (d) $\frac{2}{8} = \frac{2 \times 1}{2 \times 2 \times 2} = \frac{1}{4}$ (iv) $\frac{8}{12} = \frac{4 \times 2}{4 \times 3} = \frac{2}{3}$
 (e) $\frac{3}{4}$ (v) $\frac{4}{16} = \frac{4}{4 \times 4} = \frac{1}{4}$

Therefore, (a) \rightarrow (ii), (b) \rightarrow (iv), (c) \rightarrow (i), (d) \rightarrow (v), (e) \rightarrow (iii).

Q3. Replace \square in each of the following by the correct number:

(a) $\frac{2}{7} = \frac{8}{\square}$ (b) $\frac{5}{8} = \frac{10}{\square}$ (c) $\frac{3}{5} = \frac{\square}{20}$
 (d) $\frac{45}{60} = \frac{15}{\square}$ (e) $\frac{18}{24} = \frac{\square}{4}$

Sol. (a) $\frac{2}{7} = \frac{2 \times 4}{7 \times 4} = \frac{8}{28}$ (b) $\frac{5}{8} = \frac{5 \times 2}{8 \times 2} = \frac{10}{16}$ (c) $\frac{3}{5} = \frac{3 \times 4}{5 \times 4} = \frac{12}{20}$
 (d) $\frac{45}{60} = \frac{45 \div 3}{60 \div 3} = \frac{15}{20}$ (e) $\frac{18}{24} = \frac{18 \div 6}{24 \div 6} = \frac{3}{4}$

Q4. Find the equivalent fraction of $\frac{3}{5}$ having:

- (a) denominator 20
 (c) denominator 30

- (b) numerator 9
 (d) numerator 27

Sol. (a) $\frac{3}{5} = \frac{3 \times 4}{5 \times 4} = \frac{12}{20}$

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

(c) $\frac{3}{5} = \frac{3 \times 6}{5 \times 6} = \frac{18}{30}$

(d) $\frac{3}{5} = \frac{3 \times 9}{5 \times 9} = \frac{27}{45}$

Q5. Find the equivalent fraction of $\frac{36}{48}$ with

(a) numerator 9

(b) denominator 4

Sol. (a) $\frac{36}{48} = \frac{36 \div 4}{48 \div 4} = \frac{9}{12}$

(b) $\frac{36}{48} = \frac{36 \div 12}{48 \div 12} = \frac{3}{4}$

Q6. Check whether the given fractions are equivalent:

(a) $\frac{5}{9}, \frac{30}{54}$

(b) $\frac{3}{10}, \frac{12}{50}$

(c) $\frac{7}{13}, \frac{5}{11}$

Sol. (a) $\frac{5}{9} = \frac{5 \times 6}{9 \times 6} = \frac{30}{54}$

$\therefore \frac{5}{9}, \frac{30}{54}$ are equivalent.

(b) $\frac{3}{10} = \frac{3 \times 5}{10 \times 5} = \frac{15}{50}$

Their denominator are equal but numerator are not therefore fractions are not equivalent.

(c) $\frac{7}{13} = \frac{7 \times 11}{13 \times 11} = \frac{77}{143}$; $\frac{5}{11} = \frac{5 \times 13}{11 \times 13} = \frac{65}{143}$

Since $77 \neq 65$ therefore fractions are not equivalent.

Q7. Reduce the following fractions to simplest form:

(a) $\frac{48}{60}$

(b) $\frac{150}{60}$

(c) $\frac{84}{98}$

(d) $\frac{12}{52}$

(e) $\frac{7}{28}$

Sol. (a) $\frac{48}{60} = \frac{\cancel{2} \times \cancel{2} \times 2 \times 2 \times \cancel{3}}{\cancel{2} \times \cancel{2} \times \cancel{3} \times 5} = \frac{4}{5}$

(b) $\frac{150}{60} = \frac{5 \times \cancel{3} \times \cancel{10}}{2 \times \cancel{3} \times \cancel{10}} = \frac{5}{2}$

(c) $\frac{84}{98} = \frac{6 \times 14}{7 \times 14} = \frac{6}{7}$

(d) $\frac{12}{52} = \frac{3 \times \cancel{4}}{13 \times \cancel{4}} = \frac{3}{13}$

(e) $\frac{7}{28} = \frac{\cancel{7} \times 1}{\cancel{7} \times 4} = \frac{1}{4}$

Q8. Ramesh had 20 pencils, Sheelu had 50 pencils and Jamaal had 80 pencils. After 4 months, Ramesh used up 10 pencils, Sheelu used up 25 pencils and Jamaal used up 40 pencils. What fraction did each use up? Check if each has used up an equal fraction of her/his pencils?

Sol. Ramesh : Total pencils = 20

Pencils used = 10

Fraction = $\frac{10}{20} = \frac{1}{2}$

Sheelu : Total pencils = 50

Pencils used = 25

$$\text{Fraction} = \frac{25}{50} = \frac{1}{2}$$

Jamaal : Total pencils = 80

Pencils used = 40

$$\text{Fraction} = \frac{40}{80} = \frac{1}{2}$$

Since all of them used half of their pencils, therefore each one used up equal fraction of pencils.

Q9. Match the equivalent fractions and write two more for each.

(i) $\frac{250}{400}$

(a) $\frac{2}{3}$

(ii) $\frac{180}{200}$

(b) $\frac{2}{5}$

(iii) $\frac{660}{990}$

(c) $\frac{1}{2}$

(iv) $\frac{180}{360}$

(d) $\frac{5}{8}$

(v) $\frac{220}{550}$

(e) $\frac{9}{10}$

Sol. (i) $\frac{250}{400} = \frac{5}{8}$, $\frac{5}{8}, \frac{10}{16}, \frac{15}{24}$ (ii) $\frac{180}{200} = \frac{9}{10}$, $\frac{9}{10}, \frac{18}{20}, \frac{27}{30}$

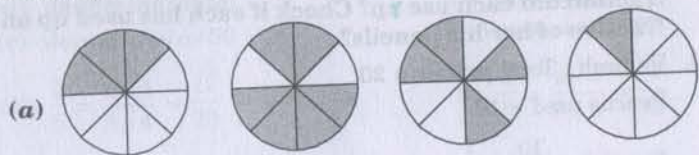
(iii) $\frac{660}{990} = \frac{2}{3}$, $\frac{2}{3}, \frac{4}{6}, \frac{6}{9}$ (iv) $\frac{180}{360} = \frac{1}{2}$, $\frac{1}{2}, \frac{2}{4}, \frac{3}{6}$

(v) $\frac{220}{550} = \frac{2}{5}$, $\frac{2}{5}, \frac{4}{10}, \frac{6}{15}$

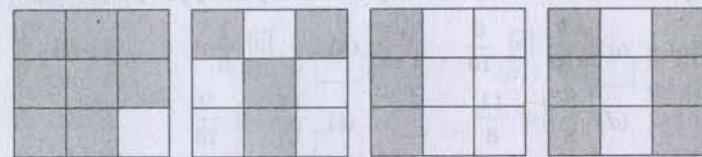
(i) \rightarrow d, (ii) \rightarrow e, (iii) \rightarrow a, (iv) \rightarrow c, (v) \rightarrow b.

EXERCISE 7.4

Q1. Write shaded portion as fraction. Arrange them in ascending and descending order using correct sign '<', '=', '>' between the fractions:



(b)



(c) Show $\frac{2}{6}$, $\frac{4}{6}$, $\frac{8}{6}$ and $\frac{6}{6}$ on the number line. Put appropriate signs between the fractions given

$$\frac{5}{6} \square \frac{2}{6}, \frac{3}{6} \square 0, \frac{1}{6} \square \frac{6}{6}, \frac{8}{6} \square \frac{5}{6}$$

Sol. (a) $\frac{3}{8}, \frac{6}{8}, \frac{4}{8}, \frac{1}{8}$

Ascending order = $\frac{1}{8} < \frac{3}{8} < \frac{4}{8} < \frac{6}{8}$

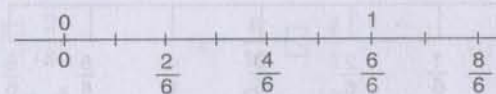
Descending order = $\frac{6}{8} > \frac{4}{8} > \frac{3}{8} > \frac{1}{8}$

(b) $\frac{8}{9}, \frac{4}{9}, \frac{3}{9}, \frac{6}{9}$

Ascending order = $\frac{3}{9} < \frac{4}{9} < \frac{6}{9} < \frac{8}{9}$

Descending order = $\frac{8}{9} > \frac{6}{9} > \frac{4}{9} > \frac{3}{9}$

(c) Number line



$$\frac{5}{6} \square \frac{2}{6}$$

$$\frac{1}{6} \square \frac{6}{6}$$

$$\frac{3}{6} \square 0$$

$$\frac{8}{6} \square \frac{5}{6}$$

Q2. Compare the fractions and put an appropriate sign.

(a) $\frac{3}{6} \square \frac{5}{6}$

(b) $\frac{1}{7} \square \frac{1}{4}$

(c) $\frac{4}{5} \square \frac{5}{5}$

(d) $\frac{3}{5} \square \frac{3}{7}$

Sol. (a) $\frac{3}{6} \square \frac{5}{6}$

(b) $\frac{1}{7} \square \frac{1}{4}$

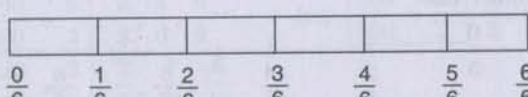
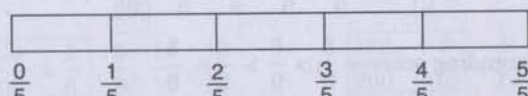
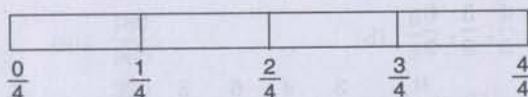
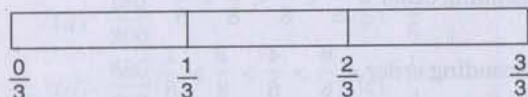
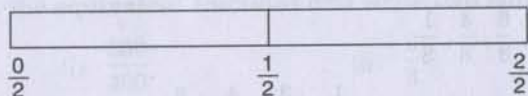
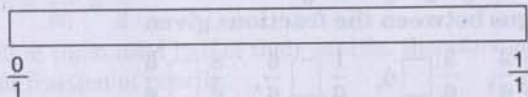
(c) $\frac{4}{5} \square \frac{5}{5}$

(d) $\frac{3}{5} \square \frac{3}{7}$

Q3. Make five more such pairs and put appropriate signs.

Sol. (a) $\frac{9}{10} > \frac{6}{10}$ (b) $\frac{1}{3} > \frac{1}{6}$ (c) $\frac{1}{8} < \frac{1}{5}$
 (d) $\frac{7}{8} < \frac{11}{8}$ (e) $\frac{11}{13} > \frac{9}{13}$

Q4. Look at the figures and write '<', '>', '=' between the given pairs of fractions.



(a) $\frac{1}{6} < \frac{1}{3}$ (b) $\frac{3}{4} < \frac{2}{6}$ (c) $\frac{2}{3} < \frac{2}{4}$

(d) $\frac{6}{6} < \frac{3}{3}$ (e) $\frac{5}{6} < \frac{5}{5}$

Make five more such problems and solve them with your friends.

Sol. (a) $\frac{1}{6} < \frac{1}{3}$ (b) $\frac{3}{4} > \frac{2}{6}$ (c) $\frac{2}{3} > \frac{2}{4}$
 (d) $\frac{6}{6} = \frac{3}{3}$ (e) $\frac{5}{6} < \frac{5}{5}$

Five problems:

(i) $\frac{1}{2} < \frac{3}{6}$ (ii) $\frac{2}{3} < \frac{3}{5}$ (iii) $\frac{3}{4} < \frac{4}{6}$

(iv) $\frac{5}{6} < \frac{2}{2}$ (v) $\frac{0}{1} < \frac{0}{6}$

Sol. (i) $\frac{1}{2} = \frac{3}{6}$ (ii) $\frac{2}{3} > \frac{3}{5}$ (iii) $\frac{3}{4} > \frac{4}{6}$

(iv) $\frac{5}{6} < \frac{2}{2}$ (v) $\frac{0}{1} = \frac{0}{6}$

Q5. How quickly can you do this? Fill appropriate sign. (<, =, >)

(a) $\frac{1}{2} < \frac{1}{5}$ (b) $\frac{2}{4} < \frac{3}{6}$ (c) $\frac{3}{5} < \frac{2}{3}$

(d) $\frac{3}{4} < \frac{2}{8}$ (e) $\frac{3}{5} < \frac{6}{5}$ (f) $\frac{7}{9} < \frac{3}{9}$

(g) $\frac{1}{4} < \frac{2}{8}$ (h) $\frac{6}{10} < \frac{4}{5}$ (i) $\frac{3}{4} < \frac{7}{8}$

(j) $\frac{6}{10} < \frac{4}{5}$ (k) $\frac{5}{7} < \frac{15}{21}$

Sol. (a) $\frac{1}{2} > \frac{1}{5}$ (b) $\frac{2}{4} = \frac{3}{6}$ (c) $\frac{3}{5} < \frac{2}{3}$

(d) $\frac{3}{4} > \frac{2}{8}$ (e) $\frac{3}{5} < \frac{6}{5}$ (f) $\frac{7}{9} > \frac{3}{9}$

(g) $\frac{1}{4} = \frac{2}{8}$ (h) $\frac{6}{10} < \frac{4}{5}$ (i) $\frac{3}{4} < \frac{7}{8}$

(j) $\frac{6}{10} < \frac{4}{5}$ (k) $\frac{5}{7} = \frac{15}{21}$

Q6. The following fractions represent just three different numbers. Separate them into three groups of equivalent fractions, by changing each one to its simplest form.

(a) $\frac{2}{12}$ (b) $\frac{3}{15}$ (c) $\frac{8}{50}$

(d) $\frac{16}{100}$ (e) $\frac{10}{60}$ (f) $\frac{15}{75}$

(g) $\frac{12}{60}$ (h) $\frac{16}{96}$ (i) $\frac{12}{75}$

(j) $\frac{12}{72}$ (k) $\frac{3}{18}$ (l) $\frac{4}{25}$

Sol. (a) $\frac{2}{12} = \frac{1}{6}$ (b) $\frac{3}{15} = \frac{1}{5}$ (c) $\frac{8}{50} = \frac{4}{25}$
 (d) $\frac{16}{100} = \frac{4}{25}$ (e) $\frac{10}{60} = \frac{1}{6}$ (f) $\frac{15}{75} = \frac{1}{5}$
 (g) $\frac{12}{60} = \frac{1}{5}$ (h) $\frac{16}{96} = \frac{1}{6}$ (i) $\frac{12}{75} = \frac{4}{25}$
 (j) $\frac{12}{72} = \frac{1}{6}$ (k) $\frac{3}{18} = \frac{1}{6}$ (l) $\frac{4}{25} = \frac{4}{25}$

I group = $\frac{1}{5} = b, f, g$ II group = $\frac{1}{6} = a, e, h, j, k$

III group = $\frac{4}{25} = c, d, i, l.$

Q7. Find answers to the following. Write and indicate how you solved them.

(a) Is $\frac{5}{9}$ equal to $\frac{4}{5}$? (b) Is $\frac{9}{16}$ equal to $\frac{5}{9}$?
 (c) Is $\frac{4}{5}$ equal to $\frac{16}{20}$? (d) Is $\frac{1}{15}$ equal to $\frac{4}{30}$?

Sol. (a) $\frac{5}{9} \times \frac{5}{5} = \frac{25}{45}$; $\frac{4}{5} \times \frac{9}{9} = \frac{36}{45}$

So $\frac{25}{45} \neq \frac{36}{45}$ then $\frac{5}{9}$ is not equal to $\frac{4}{5}$

Or

Let $\frac{5}{9} = \frac{4}{5}$

So $\frac{5}{9} \times \frac{4}{4} = \frac{4}{5} \times \frac{9}{9}$

$25 = 36$

but we know that $25 \neq 36$

So $\frac{5}{9} \neq \frac{4}{5}$.

(b) $\frac{9}{16} \times \frac{9}{9} = \frac{81}{144}$; $\frac{5}{9} \times \frac{16}{16} = \frac{80}{144}$

So $\frac{81}{144} \neq \frac{80}{144}$ then $\frac{9}{16}$ is not equal to $\frac{5}{9}$

Or

Let $\frac{9}{16} = \frac{5}{9}$

then $9 \times 9 = 16 \times 5, 81 = 80$

But we know that $80 \neq 81$

So $\frac{9}{16}$ is not equal to $\frac{5}{9}$

(c) $\frac{4}{5} \times \frac{20}{20} = \frac{80}{100}$; $\frac{16}{20} \times \frac{5}{5} = \frac{80}{100}$

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

So $\frac{4}{5} = \frac{16}{20}$

Or

Let $\frac{4}{5} = \frac{16}{20}$

then $4 \times 20 = 16 \times 5$

$80 = 80$

So $\frac{4}{5}$ is equal to $\frac{16}{20}$.

(d) $\frac{1}{15} \times \frac{2}{2} = \frac{2}{30}$; $\frac{4 \times 1}{30 \times 1} = \frac{4}{30}$

$\frac{2}{30} \neq \frac{4}{30}$

So $\frac{1}{15}$ is not equal to $\frac{4}{30}$.

Or

Let $\frac{1}{15} = \frac{4}{30}$

So $1 \times 30 = 4 \times 15$

$30 = 60$

but we know that 30 is not equal to 60

So $\frac{1}{15}$ is not equal to $\frac{4}{30}$.

Q8. Ila read 25 pages of a book containing 100 pages. Lalita read $\frac{2}{5}$ of the same book. Who read less?

Sol. Ila read 25 pages out of 100 pages

So Ila read $\frac{25}{100}$

i.e., $\frac{1}{4}$ th book

Lalita read $\frac{2}{5}$ of book i.e., $\frac{40}{100}$ pages

So $\frac{1}{4} < \frac{2}{5}$ Ila read less.

Q9. Rafiq exercised for $\frac{3}{6}$ of an hour, while Rohit exercised for $\frac{3}{4}$ of an hour. Who exercised for a longer time?

Sol. Rafiq exercised $\frac{3}{6}$ of an hour

Rohit exercised $\frac{3}{4}$ of an hour

We know that $\frac{3}{4} > \frac{3}{6}$

So Rohit exercised for a longer time.

Q10. In a class A of 25 students 20 passed in first class; in another class B of 30 students, 24 passed in first class. In which class was a greater fraction of students getting first class?

Sol. In class A 20 passed out of 25 i.e., $\frac{20}{25}$

In class B 24 passed out of 30 i.e., $\frac{24}{30}$

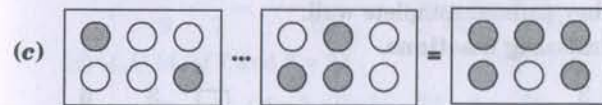
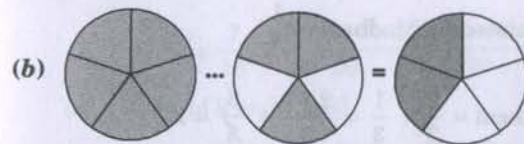
$$\frac{20}{25} = \frac{4}{5}$$

$$\frac{24}{30} = \frac{4}{5}$$

So each class have same fraction, of student getting first class.

EXERCISE 7.5

Q1. Write the fractions appropriately as additions or subtractions:



Sol. (a) $\frac{1}{5} + \frac{2}{5} = \frac{1+2}{5} = \frac{3}{5}$ (b) $\frac{5}{5} - \frac{3}{5} = \frac{2}{5}$ (c) $\frac{2}{6} + \frac{3}{6} = \frac{5}{6}$

Q2. Solve:

(a) $\frac{1}{18} + \frac{1}{18}$

(b) $\frac{8}{15} + \frac{3}{15}$

(c) $\frac{7}{7} - \frac{5}{7}$

(d) $\frac{1}{22} + \frac{21}{22}$

(e) $\frac{12}{15} - \frac{7}{15}$

(f) $\frac{5}{8} + \frac{3}{8}$

(g) $1 - \frac{2}{3} \left(1 = \frac{3}{3}\right)$

(h) $\frac{1}{4} + \frac{0}{4}$

(i) $3 - \frac{12}{5}$

Sol. (a) $\frac{1}{18} + \frac{1}{18} = \frac{1+1}{18} = \frac{2}{18} = \frac{1}{9}$ (b) $\frac{8}{15} + \frac{3}{15} = \frac{8+3}{15} = \frac{11}{15}$

(c) $\frac{7}{7} - \frac{5}{7} = \frac{7-5}{7} = \frac{2}{7}$

(d) $\frac{1}{22} + \frac{21}{22} = \frac{1+21}{22} = \frac{22}{22} = 1$

(e) $\frac{12}{15} - \frac{7}{15} = \frac{12-7}{15} = \frac{5}{15} = \frac{1}{3}$

(f) $\frac{5}{8} + \frac{3}{8} = \frac{5+3}{8} = \frac{8}{8} = 1$

(g) $1 - \frac{2}{3} = \frac{3-2}{3} = \frac{1}{3}$

(h) $\frac{1}{4} + \frac{0}{4} = \frac{1+0}{4} = \frac{1}{4}$

(i) $3 - \frac{12}{5} = \frac{15-12}{5} = \frac{3}{5}$

Q3. Shubham painted $\frac{2}{3}$ of the wall space in his room. His sister

Madhavi helped and painted $\frac{1}{3}$ of the wall space. How much did they paint together?

Sol. Fraction of wall painted by Shubham = $\frac{2}{3}$

$$\text{Fraction of wall painted by Madhavi} = \frac{1}{3}$$

$$\text{Total painting by them} = \frac{2}{3} + \frac{1}{3} = \frac{2+1}{3} = \frac{3}{3} = 1$$

Therefore they painted complete wall.

Q4. Fill in the missing fractions.

$$(a) \frac{7}{10} - \square = \frac{3}{10}$$

$$(b) \square - \frac{3}{21} = \frac{5}{21}$$

$$(c) \square - \frac{3}{6} = \frac{3}{6}$$

$$(d) \square + \frac{5}{27} = \frac{12}{27}$$

$$\text{Sol. (a) } \frac{4}{10} \quad (b) \frac{8}{21} \quad (c) \frac{6}{6} \quad (d) \frac{7}{27}$$

Q5. Javed was given of a basket of oranges. What fraction of oranges was left in the basket?

Sol. Total = 1

$$\text{Oranges left} = 1 - \frac{5}{7}$$

$$= \frac{7-5}{7} = \frac{2}{7}$$

EXERCISE 7.6

Q1. Solve:

$$(a) \frac{2}{3} + \frac{1}{7} \quad (b) \frac{3}{10} + \frac{7}{15} \quad (c) \frac{4}{9} + \frac{2}{7} \quad (d) \frac{5}{7} + \frac{1}{3}$$

$$(e) \frac{2}{5} + \frac{1}{6} \quad (f) \frac{4}{5} + \frac{2}{3} \quad (g) \frac{3}{4} - \frac{1}{3} \quad (h) \frac{5}{6} - \frac{1}{3}$$

$$(i) \frac{2}{3} + \frac{3}{4} + \frac{1}{2} \quad (j) \frac{1}{2} + \frac{1}{3} + \frac{1}{6} \quad (k) 1\frac{1}{3} + 3\frac{2}{3} \quad (l) 4\frac{2}{3} + 3\frac{1}{4}$$

$$(m) \frac{16}{5} - \frac{7}{5} \quad (n) \frac{4}{3} - \frac{1}{2}$$

Sol. (a) L.C.M. of 3 and 7 = 21

$$\therefore \frac{2}{3} + \frac{1}{7} = \frac{2 \times 7 + 1 \times 3}{21} = \frac{14 + 3}{21} = \frac{17}{21}$$

(b) L.C.M. of 10 and 15 = 30

$$\therefore \frac{3}{10} + \frac{7}{15} = \frac{3 \times 3 + 7 \times 2}{30} = \frac{9 + 14}{30} = \frac{23}{30}$$

(c) L.C.M. of 9 and 7 = 63

$$\therefore \frac{4}{9} + \frac{2}{7} = \frac{4 \times 7 + 2 \times 9}{63} = \frac{28 + 18}{63} = \frac{46}{63}$$

(d) L.C.M. of 7 and 3 = 21

$$\therefore \frac{5}{7} + \frac{1}{3} = \frac{5 \times 3 + 7 \times 1}{21} = \frac{15 + 7}{21} = \frac{22}{21} = 1\frac{1}{21}$$

(e) L.C.M. of 5 and 6 = 30

$$\therefore \frac{2}{5} + \frac{1}{6} = \frac{2 \times 6 + 5 \times 1}{30} = \frac{12 + 5}{30} = \frac{17}{30}$$

(f) L.C.M. of 5 and 3 = 15

$$\therefore \frac{4}{5} + \frac{2}{3} = \frac{4 \times 3 + 2 \times 5}{15} = \frac{12 + 10}{15} = \frac{22}{15} = 1\frac{7}{15}$$

(g) L.C.M. of 4 and 3 = 12

$$\therefore \frac{3}{4} - \frac{1}{3} = \frac{3 \times 3 - 4 \times 1}{12} = \frac{9 - 4}{12} = \frac{5}{12}$$

(h) L.C.M. of 6 and 3 = 6

$$\therefore \frac{5}{6} - \frac{1}{3} = \frac{5 - 2 \times 1}{6} = \frac{5 - 2}{6} = \frac{3}{6} = \frac{1}{2}$$

(i) L.C.M. of 3, 4 and 2 = 12

$$\therefore \frac{2}{3} + \frac{3}{4} + \frac{1}{2} = \frac{2 \times 4 + 3 \times 3 + 1 \times 6}{12} = \frac{23}{12} = 1\frac{11}{12}$$

(j) L.C.M. of 2, 3 and 6 = 6

$$\therefore \frac{1}{2} + \frac{1}{3} + \frac{1}{6} = \frac{1 \times 3 + 1 \times 2 + 1}{6} = \frac{3 + 2 + 1}{6} = \frac{6}{6} = 1$$

(k) L.C.M. of 3 and 3 = 3

$$\therefore \frac{4}{3} + \frac{11}{3} = \frac{4 \times 1 + 11 \times 1}{3} = \frac{4 + 11}{3} = \frac{15}{3} = 5$$

(l) L.C.M. of 3 and 4 = 12

$$\therefore \frac{14}{3} + \frac{13}{4} = \frac{14 \times 4 + 13 \times 3}{12} = \frac{56 + 39}{12} = \frac{95}{12} = 7\frac{11}{12}$$

(m) L.C.M. of 5 and 5 = 5

$$\therefore \frac{16}{5} - \frac{7}{5} = \frac{16-7}{5} = \frac{9}{5} = 1\frac{4}{5}$$

(n) L.C.M. of 3 and 2 = 6

$$\therefore \frac{4}{3} - \frac{1}{2} = \frac{8-3}{6} = \frac{5}{6}$$

Q2. Sarita bought $\frac{2}{5}$ metre of ribbon and Lalita $\frac{3}{4}$ metre of ribbon.

What is the total length of the ribbon they bought?

Sol. Ribbon bought by Sarita = $\frac{2}{5}$ m

Ribbon bought by Lalita = $\frac{3}{4}$ m

Total length of ribbon = $\left(\frac{2}{5} + \frac{3}{4}\right)$ m

Now $\frac{2}{5} + \frac{3}{4}$

L.C.M. of 5 and 4 = 20

$$\begin{aligned} \therefore \frac{2}{5} + \frac{3}{4} &= \frac{2 \times 4 + 5 \times 3}{20} \\ &= \frac{8+15}{20} = \frac{23}{20} = 1\frac{3}{20} \text{ metre} \end{aligned}$$

Therefore total length of ribbon is $1\frac{3}{20}$ m.

Q3. Naina was given $1\frac{1}{2}$ piece of cake and Najma was given $1\frac{1}{3}$ piece of cake. Find the total amount of cake given to both of them.

Sol. Cake taken by Naina = $1\frac{1}{2}$ piece

Cake taken by Najma = $1\frac{1}{3}$ piece

Total consumption of cake = $1\frac{1}{2} + 1\frac{1}{3}$

Now $1\frac{1}{2} + 1\frac{1}{3} = \frac{3}{2} + \frac{4}{3}$

L.C.M. 2 and 3 = 6

$$\therefore \frac{3}{2} + \frac{4}{3} = \frac{9+8}{6} = \frac{17}{6} = 2\frac{5}{6}$$

Therefore total consumption is $2\frac{5}{6}$ pieces.

Q4. Fill in the boxes : (a) $\square - \frac{5}{8} = \frac{1}{4}$ (b) $\square - \frac{1}{5} = \frac{1}{2}$ (c) $\frac{1}{2} - \square = \frac{1}{6}$.

Sol. (a) $\frac{1}{4} + \frac{5}{8} = \frac{2+5}{8} = \frac{7}{8}$

(b) $\frac{1}{2} + \frac{1}{5} = \frac{5+2}{10} = \frac{7}{10}$

(c) $\frac{1}{2} - \frac{1}{6} = \frac{3-1}{6} = \frac{2}{6}$

Q5. Complete the addition - subtraction box.

(a)

	+	
$\frac{2}{3}$	$\frac{4}{3}$	
$\frac{1}{3}$	$\frac{2}{3}$	

(b)

	+	
$\frac{1}{2}$	$\frac{1}{3}$	
$\frac{1}{3}$	$\frac{1}{4}$	

Sol. (a)

	+	
$\frac{2}{3}$	$\frac{4}{3}$	$\frac{6}{3}$
$\frac{1}{3}$	$\frac{2}{3}$	$\frac{3}{3}$
$\frac{1}{3}$	$\frac{2}{3}$	$\frac{3}{3}$

(b)

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

Q6. A piece of wire $\frac{7}{8}$ metre long broke into two pieces. One piece was $\frac{1}{4}$ metre long. How long is the other piece?

Sol. Total length of wire = $\frac{7}{8}$ metre

Length of first part = $\frac{1}{4}$ metre

Remaining part = $\frac{7}{8} - \frac{1}{4}$

Now $\frac{7}{8} - \frac{1}{4}$

L.C.M. of 8 and 4 = 8

$$\therefore \frac{7}{8} - \frac{1}{4} = \frac{7-2}{8} = \frac{5}{8}$$

Therefore the length of remaining part is $\frac{5}{8}$ metre.

Q7. Nandini's house is $\frac{9}{10}$ km from her school. She walked some distance and then took a bus for $\frac{1}{2}$ km to reach the school. How far did she walk?

Sol. Total distance between school and house = $\frac{9}{10}$ km

Distance covered by bus = $\frac{1}{2}$ km

Remaining distance = $\frac{9}{10}$ km - $\frac{1}{2}$ km

$$\therefore \frac{9}{10} - \frac{1}{2} = \frac{9-5}{10} = \frac{4}{10} = \frac{2}{5}$$

Therefore distance covered by walking is $\frac{2}{5}$ km.

Q8. Asha and Samuel have bookshelves of the same size partly filled with books. Asha's shelf is $\frac{5}{6}$ th full and Samuel's shelf is $\frac{2}{5}$ th full. Whose bookshelf is more full? By what fraction?

Sol. For comparing $\frac{5}{6}$ and $\frac{2}{5}$

$$\frac{5}{6} \times \frac{5}{5} = \frac{25}{30}$$

$$\frac{2}{5} \times \frac{6}{6} = \frac{12}{30}$$

$$\frac{25}{30} > \frac{12}{30}$$

\therefore Asha's bookshelf is more covered than Samuel.

$$\text{Difference} = \frac{25}{30} - \frac{12}{30} = \frac{13}{30}$$

Q9. Jaidev takes $2\frac{1}{5}$ minutes to walk across the school ground.

Rahul takes $\frac{7}{4}$ minutes to do the same. Who takes less time and by what fraction?

Sol. Time taken by Jaidev = $2\frac{1}{5}$ minutes = $\frac{11}{5}$ minutes

Time taken by Rahul = $\frac{7}{4}$ minutes

$$\text{Difference} = \frac{11}{5} - \frac{7}{4} = \frac{44-35}{20} = \frac{9}{20} \text{ minutes}$$

Thus Rahul takes less time, which is $\frac{9}{20}$ minutes.

TEXTBOOK QUESTIONS SOLVED

EXERCISE 8.1

