

EXERCISE 14(C)

1. Add the following fractions:

(i) $1\frac{3}{4}$ and $3/8$

(ii) $2/5$, $2\frac{3}{15}$ and $7/10$

(iii) $1\frac{7}{8}$, $1\frac{1}{2}$ and $1\frac{3}{4}$

(iv) $3\frac{3}{4}$, $2\frac{1}{6}$, and $1\frac{5}{8}$

(v) $2\frac{8}{9}$, $11/18$ and $3\frac{5}{6}$

Solution:

(i) $1\frac{3}{4}$ and $3/8$

The given fractions can be added as follows

$$7/4 + 3/8 = (7 \times 2) / (4 \times 2) + 3/8$$

$$= 14/8 + 3/8$$

$$= 17/8$$

$$= 2\frac{1}{8}$$

Hence, $2\frac{1}{8}$ is the addition of given fractions

(ii) $2/5$, $2\frac{3}{15}$ and $7/10$

The given fractions can be added as follows

$$2/5 + 33/15 + 7/10 = (2 \times 6) / (5 \times 6) + (33 \times 2) / (15 \times 2) + (7 \times 3) / (10 \times 3)$$

$$= 12/30 + 66/30 + 21/30$$

$$= 99/30$$

$$= 33/10$$

$$= 3\frac{3}{10}$$

Hence, $3\frac{3}{10}$ is the addition of given fractions

(iii) $1\frac{7}{8}$, $1\frac{1}{2}$ and $1\frac{3}{4}$

The given fractions can be added as follows

$$15/8 + 3/2 + 7/4 = (15 \times 1) / (8 \times 1) + (3 \times 4) / (2 \times 4) + (7 \times 2) / (4 \times 2)$$

$$= 15/8 + 12/8 + 14/8$$

$$= 41/8$$

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

Hence, $5\frac{1}{8}$ is the addition of the given fractions

(iv) $3\frac{3}{4}$, $2\frac{1}{6}$ and $1\frac{5}{8}$

The given fractions can be added as follows

$$15/4 + 13/6 + 13/8 = (15 \times 6)/(4 \times 6) + (13 \times 4)/(6 \times 4) + (13 \times 3)/(8 \times 3)$$

$$= 90/24 + 52/24 + 39/24$$

$$= 181/24$$

$$= 7\frac{13}{24}$$

Hence, $7\frac{13}{24}$ is the addition of given fractions

(v) $2\frac{8}{9}$, $11/18$ and $3\frac{5}{6}$

The given fractions can be added as follows

$$26/9 + 11/18 + 23/6 = (26 \times 2)/(9 \times 2) + 11/18 + (23 \times 3)/(6 \times 3)$$

$$= 52/18 + 11/18 + 69/18$$

$$= 132/18$$

$$= 22/3$$

$$= 7\frac{1}{3}$$

Hence, $7\frac{1}{3}$ is the addition of given fractions

2. Simplify:

(i) $1\frac{11}{12} - 13/16$

(ii) $2\frac{3}{4} - 1\frac{5}{6}$

(iii) $2\frac{5}{7} + 3/14 - 13/21$

(iv) $3\frac{5}{6} - 1/6 - 1\frac{1}{12}$

(v) $6 + 3/10 - 1\frac{8}{15}$

Solution:

(i) $1\frac{11}{12} - 13/16$

The given expression can be simplified as below

$$\begin{aligned} 23 / 12 - 13 / 16 &= (23 \times 4) / (12 \times 4) - (13 \times 3) / (16 \times 3) \\ &= (92 - 39) / 48 \\ &= 53 / 48 \\ &= 1 \frac{5}{48} \end{aligned}$$

Hence, simplified form of the given expression is $1 \frac{5}{48}$

(ii) $2 \frac{3}{4} - 1 \frac{5}{6}$

The given expression can be simplified as below

$$\begin{aligned} 11 / 4 - 11 / 6 &= (11 \times 6) / (4 \times 6) - (11 \times 4) / (6 \times 4) \\ &= (66 - 44) / 24 \\ &= 22 / 24 \\ &= 11 / 12 \end{aligned}$$

Hence, simplified form of the given expression is $11 / 12$

(iii) $2 \frac{5}{7} + 3 / 14 - 13 / 21$

The given expression can be simplified as below

$$\begin{aligned} 19 / 7 + 3 / 14 - 13 / 21 &= (19 \times 6) / (7 \times 6) + (3 \times 3) / (14 \times 3) - (13 \times 2) / (21 \times 2) \\ &= 114 / 42 + 9 / 42 - 26 / 42 \\ &= (114 + 9 - 26) / 42 \\ &= 97 / 42 \\ &= 2 \frac{13}{42} \end{aligned}$$

Hence, simplified form of the given expression is $2 \frac{13}{42}$

(iv) $3 \frac{5}{6} - 1 / 6 - 1 \frac{1}{12}$

The given expression can be simplified as below

$$\begin{aligned} 23 / 6 - 1 / 6 - 13 / 12 &= (23 \times 2) / (6 \times 2) - (1 \times 2) / (6 \times 2) - 13 / 12 \\ &= 46 / 12 - 2 / 12 - 13 / 12 \\ &= (46 - 2 - 13) / 12 \\ &= 31 / 12 \\ &= 2 \frac{7}{12} \end{aligned}$$

Hence, simplified form of the given expression is $2 \frac{7}{12}$

(v) $6 + 3 / 10 - 1 \frac{8}{15}$

The given expression can be simplified as below

$$\begin{aligned} 6 / 1 + 3 / 10 - 23 / 15 &= (6 \times 30) / (1 \times 30) + (3 \times 3) / (10 \times 3) - (23 \times 2) / (15 \times 2) \\ &= 180 / 30 + 9 / 30 - 46 / 30 \\ &= (180 + 9 - 46) / 30 \\ &= 143 / 30 \\ &= 4 \frac{23}{30} \end{aligned}$$

Hence, simplified form of the given expression is $4 \frac{23}{30}$

