

Class - 6 Ch - 6 Exercise - 6.5

Question 1.

Work out the following :

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

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

$$(iii) 1 - \frac{2}{3}$$

$$(iv) \frac{7}{13} + \frac{2}{13} - \frac{5}{13}$$

$$(v) 2\frac{4}{5} + 3\frac{3}{5}$$

$$(vi) 3\frac{2}{7} - 1\frac{4}{7}$$

Solution:

$$(i) \frac{8}{15} + \frac{3}{15} = \frac{8+3}{15} = \frac{11}{15}$$

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

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

$$(iv) \frac{7}{13} + \frac{2}{13} - \frac{5}{13} = \frac{7+2-5}{13} = \frac{4}{13}$$

$$(v) 2\frac{4}{5} + 3\frac{3}{5} = \frac{14}{5} + \frac{18}{5} = \frac{14+18}{5} \\ = \frac{32}{5} = 6\frac{2}{5}$$

$$(vi) 3\frac{2}{7} - 1\frac{4}{7} = \frac{23}{7} - \frac{11}{7} = \frac{23-11}{7} \\ = \frac{12}{7} = 1\frac{5}{7}$$

Question 2.

Find in the missing fractions:

$$(i) \frac{7}{10} - \square = \frac{3}{10} \quad (ii) \square + \frac{5}{27} = \frac{12}{27}$$

$$(iii) \square - \frac{5}{7} = \frac{2}{7}.$$

Solution:

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

Let the missing number be x ,

$$\Rightarrow \frac{7}{10} - x = \frac{3}{10}$$

$$\Rightarrow -x = \frac{3}{10} - \frac{7}{10}$$

$$\Rightarrow -x = \frac{-4}{10}$$

$$\Rightarrow x = \frac{4}{10}$$

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

Let the missing number be x ,

$$\Rightarrow x + \frac{5}{27} = \frac{12}{27}$$

$$\Rightarrow x = \frac{12}{27} - \frac{5}{27}$$

$$\Rightarrow x = \frac{7}{27}$$

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

Let the missing number be x ,

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

$$\Rightarrow x = \frac{2}{7} + \frac{5}{7}$$

$$\Rightarrow x = \frac{7}{7} = 1$$

Question 3.

Work out the following:

$$(i) \frac{2}{3} + \frac{3}{4}$$

$$(ii) \frac{5}{7} - \frac{4}{9}$$

$$(iii) \frac{1}{2} + \frac{3}{5}$$

$$(iv) 1\frac{4}{9} + 3\frac{5}{12}$$

$$(v) 2\frac{1}{4} - 1\frac{7}{10}$$

$$(vi) 3\frac{5}{6} - 2\frac{7}{15}$$

Solution:

$$(i) \frac{2}{3} + \frac{3}{4} \quad (\text{L.C.M. of 3 and 4} = 12)$$

$$= \frac{(2 \times 4) + (3 \times 3)}{12} = \frac{8 + 9}{12}$$

$$= \frac{17}{12} = 1\frac{5}{12}$$

$$(ii) \frac{5}{7} - \frac{4}{9} \quad (\text{L.C.M. of 7 and 9} = 63)$$

$$= \frac{(5 \times 9) - (7 \times 4)}{63} = \frac{45 - 28}{63} = \frac{17}{63}$$

$$(iii) \frac{1}{2} + \frac{3}{5} \quad (\text{L.C.M. of 2 and 5} = 10)$$

$$= \frac{(1 \times 5) + (3 \times 2)}{10} = \frac{5 + 6}{10}$$

$$= \frac{11}{10} = 1\frac{1}{10}$$

$$(iv) 1\frac{4}{9} + 3\frac{5}{12}$$

$$\Rightarrow \frac{13}{9} + \frac{41}{12} \quad (\text{L.C.M. of 9 and 12} = 36)$$

$$= \frac{(13 \times 4) + (41 \times 3)}{36} = \frac{52 + 123}{36}$$

$$= \frac{175}{36} = 4\frac{31}{36}$$

$$(v) \ 2\frac{1}{4} - 1\frac{7}{10}$$

$$\Rightarrow \frac{9}{4} - \frac{17}{10} \quad (\text{L.C.M. of 4 and 10} = 20)$$

$$= \frac{(9 \times 5) - (17 \times 2)}{20} = \frac{45 - 34}{20} = \frac{11}{20}$$

$$(vi) \ 3\frac{5}{6} - 2\frac{7}{15} \Rightarrow \frac{23}{6} - \frac{37}{15}$$

$$(\text{L.C.M. of 6 and 15} = 30)$$

$$= \frac{(23 \times 5) - (37 \times 2)}{30}$$

$$\Rightarrow \frac{115 - 74}{30} = \frac{41}{30} = 1\frac{11}{30}$$

Question 4.

Simplify the following:

$$(i) 1\frac{2}{3} + 2\frac{1}{2} + \frac{3}{4} \quad (ii) 3\frac{2}{9} + 2\frac{1}{3} + 2\frac{7}{12}$$

$$(iii) \frac{7}{12} + \frac{8}{9} - \frac{5}{6} \quad (iv) 1\frac{3}{25} + \frac{7}{20} - \frac{2}{5}$$

$$(v) 1\frac{13}{14} - 2\frac{5}{6} + 1\frac{6}{7} \quad (vi) \frac{3}{1} - 1\frac{1}{6} - \frac{7}{15}$$

$$(vii) 5 - 4\frac{3}{8} + \frac{17}{18}$$

$$(viii) 2\frac{3}{14} - 3\frac{5}{6} - \frac{2}{5} + 2\frac{1}{2}$$

Solution:

$$(i) 1\frac{2}{3} + 2\frac{1}{2} + \frac{3}{4}$$

3		3-2-4
2		1-2-4
		1-1-2

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

$$= \frac{5}{3} + \frac{5}{2} + \frac{3}{4} = \frac{5 \times 4 + 5 \times 6 + 3 \times 3}{12}$$

$$= \frac{20 + 30 + 9}{12} = \frac{59}{12} = 4\frac{11}{12}$$

$$(ii) \ 3\frac{2}{9} + 2\frac{1}{3} + 2\frac{7}{12} \quad (\text{L.C.M. of } 9, 3, 12 = 36)$$

$$= \frac{29}{9} + \frac{7}{3} + \frac{31}{12}$$

3		9-3-12
3		3-1-4
		1-1-4

$$= \frac{29 \times 4 + 7 \times 12 + 31 \times 3}{36}$$

$$= \frac{116 + 84 + 93}{36} = \frac{293}{36} = 8\frac{5}{36}$$

$$(iii) \ \frac{7}{12} + \frac{8}{9} - \frac{5}{6} \quad (\text{L.C.M. of } 12, 9, 6 = 36)$$

$$= \frac{7 \times 3 + 8 \times 4 - 5 \times 6}{36}$$

$$= \frac{7 \times 3 + 8 \times 4 - 5 \times 6}{36}$$

$$= \frac{53 - 30}{36} = \frac{23}{36}$$

3		12-9-6
2		4-3-2
2		2-3-1
3		1-3-1
		1-1-1

$$(iv) \ 1\frac{3}{25} + \frac{7}{20} - \frac{2}{5} \quad (\text{L.C.M } 25, 20, 5 = 100)$$

$$= \frac{28}{25} + \frac{7}{20} - \frac{2}{5}$$

5		25-20-5
5		5-4-1
2		1-4-1
2		1-2-1
		1-1-1

$$= \frac{28 \times 4 + 7 \times 5 - 2 \times 20}{100}$$

$$\Rightarrow \frac{112 + 35 - 40}{100} = \frac{147 - 40}{100} = \frac{107}{100} = 1\frac{7}{100}$$

$$(v) \ 1\frac{13}{14} - 2\frac{5}{6} + 1\frac{6}{7} \quad (\text{L.C.M. of } 14, 6, 7 = 42)$$

$$= \frac{27}{14} - \frac{17}{6} + \frac{13}{7}$$

$$= \frac{27 \times 3 - 17 \times 7 + 13 \times 6}{42}$$

2		14-6-7
7		7-3-7
3		1-3-1
		1-1-1

$$\Rightarrow \frac{81 - 119 + 78}{42} = \frac{159 - 119}{42} = \frac{40}{42} = \frac{20}{21}$$

$$(vi) \ \frac{3}{1} - 1\frac{1}{6} - \frac{7}{15} \quad (\text{L.C.M. of } 1, 6, 15 = 30)$$

$$= \frac{3}{1} - \frac{7}{6} - \frac{7}{15}$$

$$= \frac{3 \times 30 - 7 \times 5 - 7 \times 2}{30}$$

3		6-15
2		2-5
5		1-5
1		1-1

$$\Rightarrow \frac{90 - 35 - 14}{30} = \frac{41}{30} = 1\frac{11}{30}$$

$$(vii) \ 5 - 4\frac{3}{8} + \frac{17}{18} \quad (\text{L.C.M. of } 8, 18 = 72)$$

$$= \frac{5}{1} - \frac{35}{8} + \frac{17}{18}$$

$$= \frac{5 \times 72 - 35 \times 9 + 17 \times 4}{72}$$

$$= \frac{360 - 315 + 68}{72} = 1\frac{41}{72}$$

2		8-18
2		4-9
2		2-9
3		1-9
3		1-3

$$(viii) 2\frac{3}{14} - 3\frac{5}{6} - \frac{2}{5} + 2\frac{1}{2}$$

(L.C.M. of 14,6,5,2 = 210)

$$= \frac{31}{14} - \frac{23}{6} - \frac{2}{5} + \frac{5}{2}$$

2	14-6-5-2
7	7-3-5-1
	1-3-5-1

$$= \frac{31 \times 15 - 23 \times 35 - 2 \times 42 + 5 \times 105}{210}$$

$$= \frac{465 - 805 - 84 + 525}{210} = \frac{990 - 889}{210} = \frac{101}{210}$$

Question 5.

(i) What number should be added to $\frac{5}{12}$ to get $2\frac{3}{8}$?

(ii) What number should be subtracted from 5 to get $1\frac{5}{13}$?

Solution:

(i) Let the number to be added = x

$$\therefore \frac{5}{12} + x = 2\frac{3}{8}$$

$$\therefore \text{Required number (x)} = 2\frac{3}{8} - \frac{5}{12}$$

$$x = \frac{19}{8} - \frac{5}{12}$$

$$= \frac{57 - 10}{24} = \frac{47}{24} = 1\frac{23}{24}$$

(ii) Let the number to be subtracted = x

$$\therefore 5 - x = 1\frac{5}{13}$$

$$\text{Required number (x)} = 5 - 1\frac{5}{13}$$

$$x = \frac{5}{1} - \frac{18}{13}$$

$$= \frac{65 - 18}{13} = \frac{47}{13} = 3\frac{8}{13}$$