3.9.21
Friday

Date
Page

2. Subtract.

3	9, 15
3	3, 5
5	1, 5
	1, 1

a) $\frac{8}{15} - \frac{4}{9}$

L.C.M = 45

$= \frac{8 \times 3 - 4 - 5}{45} = \frac{24 - 20}{45} = \frac{4}{45}$

b) $\frac{11}{13} - \frac{5}{7}$

L.C.M = 3 X 7 = 21
As, 13, 7 are prime numbers

$\frac{11 \times 7 - 5 \times 13}{91} = \frac{77 - 65}{91} = \frac{12}{91}$

c) $\frac{13}{17} - \frac{7}{10}$

L.C.M = 17 X 10 = 170

$\frac{13 \times 10 - 7 \times 17}{170} = \frac{130 - 119}{170} = \frac{11}{170}$

d) $\frac{15}{19} - \frac{9}{13}$

L.C.M = 19 X 13 = 247

$\frac{15 \times 13 - 9 \times 19}{247} = \frac{195 - 171}{247} = \frac{24}{247}$

e) $\frac{7}{9} - \frac{4}{15}$

3	9, 15
3	3, 5
5	1, 5
	1, 1

L.C.M = 45

$$\frac{7 \times 5 - 4 \times 3}{45} = \frac{35 - 12}{45} = \frac{23}{45}$$

f) $\frac{16}{27} - \frac{7}{18}$

3	27, 18
3	9, 6
3	3, 2
2	1, 2
	1, 1

L.C.M = 54

$$\frac{16 \times 2 - 7 \times 3}{54} = \frac{32 - 21}{54} = \frac{11}{54}$$

g) $13\frac{7}{9} - 8\frac{5}{12} = \frac{124}{9} - \frac{101}{12}$

3	9, 12
3	3, 4
2	1, 4
2	1, 2
	1, 1

$$\frac{124 \times 4 - 101 \times 3}{36} = \frac{496 - 303}{36} = \frac{193}{36} = 5\frac{13}{36}$$

h) $6\frac{3}{17} - 4 = \frac{105}{17} - \frac{4}{1}$ [L.C.M = 17]

$$\frac{105 \times 1 - 4 \times 17}{17} = \frac{105 - 68}{17} = \frac{37}{17} = 2\frac{3}{17}$$

i) $30\frac{3}{4} - 25 = \frac{123}{4} - \frac{25}{1}$ [L.C.M = 4]

$$\frac{123 \times 1 - 25 \times 4}{4} = \frac{123 - 100}{4} = \frac{23}{4} = 5\frac{3}{4}$$

j) $20\frac{7}{12} - 15 = \frac{247}{12} - \frac{15}{1}$ [L.C.M = 12]

$$\frac{247 \times 1 - 15 \times 12}{12} = \frac{247 - 180}{12} = \frac{67}{12} = 5\frac{7}{12}$$

K) $12\frac{7}{8} - 11\frac{1}{2} = \frac{53}{8} - \frac{23}{2}$

2	8, 2
2	4, 1
2	2, 1
	1, 1

$$\frac{53 \times 1 - 23 \times 4}{8} = \frac{53 - 92}{8} = \frac{39}{8} = 4\frac{7}{8}$$

l) $100\frac{1}{4} - 99 = \frac{401}{4} - \frac{99}{1}$ [L.C.M = 4]

$$\frac{401 \times 1 - 99 \times 4}{4} = \frac{401 - 495}{4} = \frac{94}{4} = 23\frac{3}{4}$$

3. Simplify.

a) $\frac{7}{12} + \frac{9}{12} - \frac{5}{12}$

$= \frac{7+9-5}{12} = \frac{11}{12}$

b) $\frac{9}{10} - \frac{3}{5} + \frac{7}{8} = \frac{9}{10} + \frac{7}{8} - \frac{3}{5}$

$= \frac{9\times4 + 7\times5 - 3\times8}{40} = \frac{36+35-24}{40} = \frac{71-24}{40} = \frac{47}{40}$

$\frac{47}{40} = 1\frac{7}{40}$

c. $\frac{5}{12} \frac{2}{3} \frac{1}{2} + 7$

$= \frac{5}{12} + \frac{7}{1} - \frac{2}{3} - \frac{1}{2}$ [L.C.M = 12]

$= \frac{5 + 7 \times 12 - 2 \times 4 - 1 \times 6}{12}$

$= \frac{5 + 84 - 8 - 6}{12}$

$= \frac{89 - 14}{12} = \frac{75}{12} = 6\frac{3}{12}$

d. $\frac{1}{2} + \frac{3}{4} - \frac{5}{8} - \frac{1}{16}$

$$\frac{1\times8 + 3\times4 - 5\times2 - 1\times1}{16} = \frac{8+12-10-1}{16}$$

$$\frac{8+12-10-1}{16} = \frac{20-10}{16} = \frac{10-1}{16} = \frac{9}{16}$$

e. $8\frac{3}{4} + 7\frac{1}{2} - 3\frac{1}{4} - 2\frac{1}{2} = \frac{35}{4} + \frac{15}{2} - \frac{13}{4} - \frac{5}{2}$

$$\frac{35\times1 + 15\times2 - 13\times1 - 5\times2}{4}$$

2	4, 2, 4, 2
2	2, 1, 2, 1
	1, 1, 1, 1

L.C.M = 4

$$= \frac{35+30-13-10}{4} = \frac{42}{4} = 10\frac{2}{4}$$

f. $10\frac{5}{6} - 7\frac{2}{3} + 8\frac{1}{3} - 5\frac{1}{2} = \frac{65}{6} + \frac{25}{3} - \frac{23}{3} - \frac{11}{3}$

$\frac{65\times1+25\times2-23\times2-11\times2}{6}$

$= \frac{65+50-46-22}{6} = \frac{47}{6} = 7\frac{5}{6}$

3	6, 3, 3, 3
2	2, 1, 1, 1
	1, 1, 1, 1

L.C.M = 6

g. $5\frac{5}{12} - 6 + 8 - 5\frac{3}{5} = \frac{65}{12} + \frac{8}{1} - \frac{6}{1} - \frac{28}{5}$

$\frac{65\times5+8\times60-6\times60-28\times12}{60}$

$= \frac{325+480-360-336}{60} = \frac{109}{60} = 1\frac{49}{60}$

2	12, 5
2	6, 5
3	3, 5
5	1, 5
	1, 1

L.C.M = 60

h. $10\frac{1}{4} + 6\frac{3}{8} - 15 + 1\frac{1}{12} = \frac{41}{4} + \frac{51}{8} + \frac{13}{12} - \frac{15}{1}$

$\frac{41\times6+51\times3+13\times2-15\times24}{24}$

$= \frac{246+153+26-360}{24} = \frac{-26}{24} = -1\frac{2}{24}$

2	4, 8, 12
2	2, 4, 6
2	1, 2, 3
3	1, 1, 3
	1, 1, 1

L.C.M = 24

i. $25 - 20\frac{1}{2} + 15\frac{3}{5} - 5 = \frac{25}{1} + \frac{78}{5} - \frac{41}{2} - \frac{5}{1}$

$$\frac{25\times10 + 78\times2 - 41\times5 - 5\times10}{10}$$

2	5, 2
5	5, 1
	1, 1

$$= \frac{250 + 156 - 205 - 50}{10} = \frac{151}{10} = 15\frac{1}{10} \quad \text{L.C.M} = 10$$

j. $\frac{9}{14} - 1\frac{2}{7} + 4\frac{3}{7} - 1\frac{2}{21} = \frac{9}{14} + \frac{31}{7} - \frac{9}{7} - \frac{23}{21}$

$$\frac{9\times3 + 31\times6 - 9\times6 - 23\times2}{42}$$

7	14, 7, 7, 21
2	2, 1, 1, 3
3	1, 1, 1, 3
34	1, 1, 1, 1

$$= \frac{27 + 186 - 54 - 46}{42} = \frac{118}{42} = 2\frac{34}{42} \quad \text{L.C.M} = 42$$