a) $\frac{5}{6} + \frac{7}{12}$

$\frac{5 \times 2 + 7 \times 1}{12}$

$= \frac{10 + 7}{12} = \frac{17}{12} = 1\frac{5}{12}$

b) $\frac{4}{5} + \frac{3}{10} + \frac{7}{2}$

LCM = 10

$\frac{4 \times 2 + 3 \times 1 + 7 \times 5}{10}$

$= \frac{8 + 3 + 35}{10} = \frac{46}{10} = 4\frac{6}{10} = 4\frac{3}{5}$

c) $\frac{5}{6} + \frac{7}{12} + \frac{5}{24}$

$\frac{5 \times 4 + 7 \times 2 + 5 \times 1}{24}$

$= \frac{20 + 14 + 5}{24} = \frac{39}{24} = 1\frac{15}{24} = 1\frac{5}{8}$

d) $\frac{2}{7} + \frac{3}{5} + \frac{7}{2}$

$\frac{2 \times 10 + 3 \times 14 + 1 \times 35}{70}$

$\frac{20 + 42 + 35}{70} = \frac{97}{70} = 1\frac{27}{70}$

e) $\frac{3}{16} + \frac{7}{10} + \frac{2}{5}$

$= \frac{3 \times 5 + 7 \times 8 + 2 \times 16}{80} =$

5	5, 10, 16
2	1, 2, 16
2	1, 1, 8
2	1, 1, 4
	1, 1, 2

2	25, 10, 8
5	25, 5, 4
2	5, 1, 4
5	5, 1, 2
2	1, 1, 2
	1, 1, 1

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

7	14, 7, 12
2	2, 1, 12
3	1, 1, 6
	1, 1, 2

$\frac{25+56+32}{80} = \frac{113}{80} = 1\frac{33}{80}$

(f) $\frac{16}{25} + \frac{9}{10} + \frac{3}{8}$

$\frac{16\times8 + 9\times20\times3\times25}{200} = \frac{128+180+75}{200} = \frac{383}{200} = 1\frac{183}{200}$

(g) $1\frac{1}{4} + \frac{33}{8}$

$2\frac{5}{4} + \frac{27}{8}$

$\frac{5\times2 + 27\times1}{8}$

$2\frac{10+27}{8} = \frac{37}{8} = 4\frac{5}{8}$

(h) $3\frac{1}{3} + 5\frac{5}{6} + 5\frac{1}{2}$

$\frac{10}{3} + \frac{47}{6} + \frac{11}{2}$

$\frac{10\times2 + 47\times1 + 11\times3}{6}$

$2\frac{40+47+11}{12} = 2\frac{145}{12} = \frac{20+97+33}{6} = \frac{100}{6} = 16\frac{4}{6} = 16\frac{2}{3}$

(i) $2\left(6\frac{5}{14} + 7\frac{3}{7} + 8\frac{7}{12}\right)$

$2\left(\frac{89}{14} + \frac{52}{7} + \frac{103}{12}\right)$

$\frac{89\times6 + 52\times12 + 103\times7}{84}$

$2\frac{534+624+618}{84} = \frac{1776}{84} = 21\frac{32}{84} = 21\frac{8}{21} = 21\frac{2}{3}$

$6\frac{5}{14} + 20 + 3\frac{3}{7} + 8\frac{7}{12}$

$6 + 7 + 8 + 20\left(\frac{5}{14} + \frac{3}{7} + \frac{7}{12}\right)$

$6 + 7 + 8 + 20\left(\frac{30 + 36 + 49}{84}\right)$

$6 + 7 + 8 + 20 = \frac{115}{84} = 1\frac{31}{84}$

$= 41 + 1\frac{31}{84} = 42\frac{31}{84}$

2. $\frac{8}{15} - \frac{4}{9}$

$= \frac{8 \times 3 + 4 \times 5}{45}$

$\frac{24 + 20}{45} = \frac{4}{45}$

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

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

$= \frac{77 - 65}{91} = \frac{12}{91}$

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

$\frac{13 \times 10 - 7 \times 17}{170}$

$= \frac{130 - 119}{170} = \frac{11}{170}$

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

$\frac{15 \times 13 - 9 \times 17}{247}$

3 | 15, 9
5, 3

19 | 19, 13
13 | 1, 13
1, 1

LCM = 19 × 13 =

19 × 13 = 57 + 190 = 247

5 × 13 = 65 × 3 = 195

17 × 9 = 153

3 | 18, 27
3 | 6, 9
2, 3

3 | 9, 15
3, 5

3 | 9, 19
3 | 3, 4
1, 2

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$$= \frac{195-171}{247} = \frac{24}{247}$$

(d) $\frac{16}{27} - \frac{7}{18}$

$$\frac{16\times2 - 7\times3}{54}$$

$$\frac{32-21}{54} = \frac{11}{54}$$

(e) $\frac{17}{9} - \frac{4}{15}$

$$\frac{17\times5 - 4\times3}{45}$$

$$= \frac{35-12}{45} = \frac{23}{45}$$

(g) $13\frac{7}{9} - 8\frac{5}{12}$

$$= \frac{124}{9} - \frac{101}{12}$$

$$\frac{124\times4 - 101\times3}{36}$$

$$\frac{496-303}{36} = \frac{193}{36} = 5\frac{13}{36}$$

(h) $6\frac{3}{17} - 4$

$$= \frac{105}{17} - \frac{4}{1}$$

$$\frac{105\times1 - 4\times17}{17}$$

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

(i) $30\frac{3}{4} - 25$

$= \frac{123}{4} - \frac{25}{1}$

$\frac{123\times1 - 25\times4}{4}$

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

(j) $20\frac{7}{12} - 15$

$= \frac{247}{12} - \frac{15}{1}$

$\frac{247\times1 - 15\times12}{12}$

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

(k) $7\frac{7}{8} - 1\frac{1}{2}$

$\frac{103}{8} - \frac{23}{2}$

$\frac{103\times1 - 23\times4}{8}$

$\frac{103-92}{8} = \frac{11}{8} = 1\frac{3}{8}$

(l) $100\frac{1}{4} - 99$

$\frac{400}{4} - \frac{99}{1}$

$\frac{400\times1 - 99\times4}{4}$

2	8, 2
2	4, 1
	2, 1

$\frac{401 - 396}{4} = \frac{5}{4} = 1\frac{1}{4}$