Exercise 14

1. (a) $1\frac{2}{3} = \frac{(1\times3)+2}{3} = \frac{5}{3}$ (b) $3\frac{4}{9} = \frac{(3\times9)+4}{9} = \frac{31}{9}$ (c) $10\frac{4}{7} = \frac{(10\times7)+4}{7} = \frac{74}{7}$

(d) $15\frac{1}{3} = \frac{(15\times3)+1}{3} = \frac{46}{3}$

2. (a) $\frac{3}{2} = \frac{3}{2}$)3 (1 $= 1\frac{1}{2}$ (b) $\frac{9}{4} = \frac{9}{4}$)9 (2 $= 2\frac{1}{4}$

(c) $\frac{81}{10} = \frac{81}{10}$)81 (8 $= 8\frac{1}{10}$ (d) $\frac{97}{12} = \frac{97}{12}$)97 (8 $= 8\frac{1}{12}$

3. (a) $8\frac{4}{12} = \frac{1}{3}$ (both numbers are divided by 4)

(b) $\frac{9}{24} = \frac{3}{8}$ (both numbers are divided by 3)

(c) $\frac{33}{44} = \frac{3}{4}$ (both numbers are divided by 11)

(d) $\frac{36}{63} = \frac{4}{7}$ (both numbers are divided by 9)

4. (a) $2 \div 3 = \frac{2}{3}$ (b) $16 \div 4 = \frac{16}{4}$ (c) $9 \div 12 = \frac{9}{12}$

(d) $1 \div 15 = \frac{1}{15}$

5. (a) $\frac{1}{5} + \frac{2}{5} = \frac{1+2}{5} = \frac{3}{5}$ (b) $\frac{3}{11} + \frac{4}{11} = \frac{3+4}{11} = \frac{7}{11}$

(c) $\frac{12}{25} + \frac{3}{25} = \frac{12+3}{25} = \frac{15}{25} = \frac{3}{5}$

(d) $\frac{7}{9} - \frac{5}{9} = \frac{7-5}{9} = \frac{2}{9}$ (e) $\frac{11}{17} - \frac{2}{17} = \frac{11-2}{17} = \frac{9}{17}$

(f) $\frac{14}{33} - \frac{8}{33} = \frac{14-8}{33} = \frac{6}{33} = \frac{2}{11}$

6. (a) $\frac{2}{3} + \frac{1}{6}$

LCM of 3, 6

3 | 3, 6

1, 2

$\therefore 3\times2=6$

$= \frac{(2\times2)+(1\times1)}{6}$

$= \frac{4+1}{6} = \frac{5}{6}$

(b) $\frac{3}{8} + \frac{3}{12}$

LCM of 8, 12

2 | 8, 12

2 | 4, 6

2, 3

$3\times2\times2\times2 = 24$

$= \frac{(3\times3)+(3\times2)}{24}$

$= \frac{9+6}{24} = \frac{14}{24} = \frac{7}{12}$

6. (c) $\frac{1}{4} + \frac{3}{4} + 1\frac{1}{5}$

$= \frac{1}{4} + \frac{3}{4} + \frac{6}{5}$

$= \frac{1+3}{4} + \frac{6}{5}$

$= \frac{(4\times5)+(6\times4)}{20}$

$= \frac{20+24}{20} = \frac{44}{20} = \frac{11}{5}$

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

$= \frac{9}{2} + \frac{7}{2} + \frac{1}{4}$

$= \frac{9+7}{2} + \frac{1}{4}$

$= \frac{(16\times2)+(1\times1)}{4}$

$= \frac{32+1}{4} = \frac{33}{4}$

(e) $\frac{3}{10} + \frac{13}{10} + 2\frac{1}{10}$

$= \frac{3}{10} + \frac{13}{10} + \frac{21}{10}$

$= \frac{3+13+21}{10} = \frac{37}{10}$

(f) $\frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{6}$

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

$= \frac{(1\times2)+1}{4} + \frac{(1\times3)+1}{6}$

$= \frac{3}{4} + \frac{4}{6}$

$= \frac{(3\times3)+(4\times2)}{12} = \frac{9+8}{12} = \frac{17}{12}$

7. (a) $\frac{5}{6} - \frac{5}{8}$

$= \frac{(5\times4)-(5\times3)}{24} = \frac{20-15}{24} = \frac{5}{24}$

(b) $\frac{9}{20} - \frac{3}{50}$

$= \frac{(9\times5)-(3\times2)}{100} = \frac{45-6}{100} = \frac{39}{100}$

(c) $3\frac{1}{8} - 1\frac{3}{4}$

$= \frac{25}{8} - \frac{7}{4} = \frac{25-(7\times2)}{8} = \frac{25-14}{8} = \frac{11}{8}$

8. $\frac{2}{5} = 0.4$, $\frac{4}{15} = 0.2$, $\frac{3}{5} = 0.6$, $\frac{7}{10} = 0.7$, $\frac{13}{10} = 1.3$

(a) The greater fraction = $\frac{4}{15}$

(b) The smallest fraction = $\frac{13}{10}$