Fractions

6. Fractions.

Solution-01:-

(i) $3 \div 7$

fraction is $\frac{3}{7}$

(ii) $11 \div 78$

fraction is $\frac{11}{78}$

(iii) $113 \div 128$

fraction is $\frac{113}{128}$.

Solution-02:-

(i) $\frac{2}{7}$

Two - Seventh.

(ii) $\frac{3}{10}$

three - tenth

(iii) $\frac{15}{28}$

fifteen - twenty eighth.

Solution-03:-

(i) one - Sixth

$\frac{1}{6}$

(ii) Three - elevanth

$\frac{3}{11}$.

(iii) seven - fortieth.

$\frac{7}{40}$

(iv) thirteen - one hundred twenty fifth.

$\frac{13}{125}$.

Solution-04:-

(i) $\frac{4}{7}$ (4 parts coloured out of 7)

(ii) $\frac{3}{8}$ (3 parts coloured out of 8)

(iii) $\frac{1}{8}$ (1 part coloured out of 8)

(iv) $\frac{1}{4}$ (1 part coloured out of 4)

(v) $\frac{1}{6}$ (1 part coloured out of 6)

(vi) $\frac{3}{10}$ (3 parts coloured out of 10)

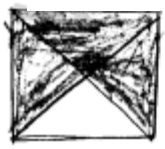
(vii) $\frac{3}{7}$ (3 parts coloured out of 7)

(viii) $\frac{2}{4}$ (2 parts coloured out of 4)

(ix) $\frac{4}{9}$ (4 parts coloured out of 9).

Solution-05:-

(i)



3/4.

(ii)

→ 1/6 = $\frac{1}{6}$

(iii)

1/4 = $\frac{1}{4}$

(iv)

4/9. = $\frac{4}{9}$.

(v)

$\frac{2}{6}$ = $\frac{1}{3}$.

(vi)

$\frac{5}{8}$.

Solution-06:-

The whole rectangle is not divided into four equal parts.

Solution-07:-

(i) numerator = 5 and denominator = 13

fraction = $\frac{5}{13}$.

(11) denominator = 23 and numerator = 17.

fraction is → $\frac{17}{23}$.

Solution-08:-

Shabana has to stitch 35 dresses.

Number of stitched = 21 dresses

∴ fraction of dresses she has stitched = $\frac{21}{35}$.

Solution-09:-

Total number of hours in a day = 24 Hours.

Numerator = 8 hours

denominator = 24 hours.

fraction is $\frac{8}{24}$.

Solution-10:-

Number of minutes in an hour = 60 minutes

numerator = 45 minutes

denominator = 60 minutes

fraction = $\frac{45}{60}$.

Solution-11:-

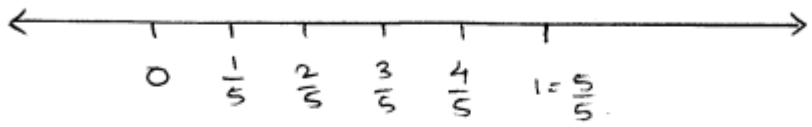
Natural Numbers between 87 to 97 are 88, 89, 90, 91, 92, 93, 94, 95, 96, 97.

primenumbers 89, 97.

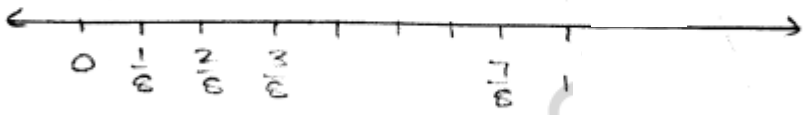
fraction = $\frac{2}{11}$.

Exercise - 6.2

(i) fractions $\frac{2}{5}, \frac{3}{5}, \frac{4}{5}$ and $\frac{5}{5}$ on a number line as shown



(ii) $\frac{1}{8}, \frac{2}{8}, \frac{3}{8}$ and $\frac{7}{8}$ on a number line



(iii) $\frac{0}{10}, \frac{1}{10}, \frac{3}{10}, \frac{5}{10}, \frac{7}{10}$ and $\frac{10}{10}$ on a number line

Exercise- 6.3.

Solution- 01 :-

(i) $\frac{15}{26}$

Proper fraction :-

A mamk fraction whose numerator is greater than zero but less than its denominator is called a proper fraction.

Improper fraction:-

A fraction whose numerator is equal to or greater than its denominator is called an improper fraction.

Mixed fraction:-

A number which consists of two parts (i) natural number (ii) a proper fraction is called a mixed fraction.

$\frac{15}{26}$ is a proper fraction

(ii) improper fraction

(iii) mixed fraction

(iv) proper fraction

(v) mixed fraction

(vi) improper fraction.

(vii) proper fraction.

(viii) improper fraction.

Solution -02:-

(i) $\frac{17}{3}$.

dividing 17 by 3, we get

$$\begin{array}{r} 3)\,17\,(5 \\ -15 \\ \hline 2 \end{array}$$

$\therefore \frac{17}{3} = 5\frac{2}{3}$.

(ii) $\frac{119}{15}$.

dividing 119 by 15, we get

$$\begin{array}{r} 15)\,119\,(7 \\ 105 \\ \hline 14 \end{array}$$

$\therefore \frac{119}{15} = 7\frac{14}{15}$.

(iii) $\frac{961}{13}$

$$\begin{array}{r} 13)\,961\,(7 \\ 91 \\ \hline 11 \end{array}$$

$\therefore \frac{961}{13} = 7\frac{11}{13}$.

(iv) $\frac{117}{32}$

$$\begin{array}{r} 32)\,117\,(3 \\ 96 \\ \hline 21 \end{array}$$

$\therefore \frac{117}{32} = 3\frac{21}{32}$

Solution-03:-

(i) $7\frac{2}{11} = 7 + \frac{2}{11} = \frac{7\times11+2}{11}$

$= \frac{77+2}{11}$

$= \frac{79}{11}$.

(ii) $3\frac{5}{48} = 3 + \frac{5}{48} = \frac{3\times48+5}{48}$

$= \frac{144+5}{48}$

$= \frac{149}{48}$.

(iii) $13\frac{7}{64} = 13 + \frac{7}{64} = \frac{13\times64+7}{64}$

$= \frac{832+7}{64}$

$= \frac{839}{64}$.

(iv) $7\frac{2}{3} = 7 + \frac{2}{3} = \frac{7\times3+2}{3}$

$= \frac{21+2}{3}$

$= \frac{23}{3}$

Solution-04:-

fractions $\frac{1}{2}$, $\frac{2}{4}$, $\frac{3}{6}$ and $\frac{4}{8}$.

Lcm of 2, 4, 6, 8 $= 8 \times 3$

$= 24.$

$$\begin{array}{r|l} 2 & 2, 4, 6, 8 \\ 2 & 1, 2, 3, 4 \\ & 1, 1, 3, 2 \end{array}$$

$2 \times 2 \times 2 \times 3$

To write $\frac{1}{12}$ with denominator 24, multiply with numerator and denominator of the given the fraction with 12.

$\therefore \frac{1}{12} = \frac{1 \times 12}{12 \times 12} = \frac{12}{24}$

$\therefore \frac{2}{4} = \frac{2 \times 6}{4 \times 6} = \frac{12}{24}$

$\therefore \frac{3}{6} = \frac{3 \times 4}{6 \times 4} = \frac{12}{24}$

$\therefore \frac{4}{8} = \frac{4 \times 3}{8 \times 3} = \frac{12}{24}$

Thus, $\frac{1}{12}$, $\frac{2}{4}$, $\frac{3}{6}$ and $\frac{4}{8}$ can be written as $\frac{12}{24}$, $\frac{12}{24}$, $\frac{12}{24}$ & $\frac{12}{24}$ respectively, which are equivalent like fractions.

Solution-05:-

(i) $\frac{1}{2}$ (ii) $\frac{4}{6}$ (iii) $\frac{3}{9}$ (iv) $\frac{2}{8}$ (v) $\frac{3}{4}$

(a) $\frac{4}{16}$ (b) $\frac{8}{12}$ (c) $\frac{12}{16}$ (d) $\frac{4}{8}$ (e) $\frac{6}{18}$

(i) $\leftrightarrow$ d; $\frac{1}{2} = \frac{1 \times 4}{2 \times 4} = \frac{4}{8}$.

(ii) $\leftrightarrow$ b.

$$\frac{4}{6} = \frac{4\times2}{6\times2} = \frac{8}{12}.$$

(iii) $\leftrightarrow$ e.

$$\frac{12}{1}\ \frac{3}{9} = \frac{3\times2}{9\times2} = \frac{6}{18}.$$

(iv) $\leftrightarrow$ a.

$$\frac{2}{8} = \frac{2\times2}{8\times2} = \frac{4}{16}.$$

(v) $\leftrightarrow$ c.

$$\frac{3}{4} = \frac{3\times4}{4\times4} = \frac{12}{16}.$$

Solution-06:-

(i) equivalent fraction of $\frac{15}{35}$

divide the numerator and denominator by '5'

$$\frac{15}{35} = \frac{\frac{15}{5}}{\frac{35}{5}} = \frac{3}{7}.$$

(ii) equivalent fraction of $\frac{2}{9}$.

denominator - 63.

multiply ~~divide~~ the numerator and denominator by 7

$$\frac{2}{9} = \frac{2\times7}{9\times7} = \frac{14}{63}$$

Solution - 07:-

equivalent fraction of $\frac{3}{5}$

(i) denominator = 30.

multiply by numerator and denominator by '6'

equivalent fraction = $\frac{3}{5} = \frac{3 \times 6}{5 \times 6}$

$= \frac{18}{30}$.

(ii) equivalent fraction $\frac{3}{5}$

numerator - 27.

multiply by numerator and denominator with 9.

equivalent fraction = $\frac{3}{5} = \frac{3 \times 9}{5 \times 9}$

$= \frac{27}{45}$.

Solution - 08:-

(i) $\frac{2}{3} = \frac{\square}{15}$.

The numerator in the first fraction is 2

denominator in the second fraction is 15.

To get 15 from 3, we have to multiply 3 by 5.

∴ To make both fractions equal, we multiply

Solution - 09:-

(i) $\frac{3}{10}, \frac{12}{40}$.

Lcm of 10 and 40 = 10 × 4
= 40.

$10\overline{)10, 40}$
$1, 4$

To write $\frac{3}{10}$ with denominator 40, multiply the numerator and denominator of the given fraction with 4

$\therefore \frac{3}{10} = \frac{3 \times 4}{10 \times 4} = \frac{12}{40}$.

Thus $\frac{3}{10}, \frac{12}{40}$ are equivalent fractions.

(ii) $\frac{5}{8}, \frac{30}{48}$.

Lcm of 8 and 48 is = 8 × 6
= 48.

$8\overline{)8, 48}$
$1, 6.$

To write $\frac{5}{8}$ with denominator 48. multiply the numerator and denominator of the given fraction with 6

$\therefore \frac{5}{8} = \frac{5 \times 6}{8 \times 6} = \frac{30}{48}$.

Thus $\frac{5}{8}, \frac{30}{48}$ are equivalent fractions.

(iii) $\frac{4}{6}, \frac{30}{20}$

Lcm of 6 and 20 is
= 2 × 2 × 3 × 5
= 4 × 15
= 60.

$2\overline{)6, 20}$
$2\overline{)3, 10}$
$3, 5$

To write $\frac{4}{6}$ with denominator 60, multiply numerator and denominator of the given fraction with 10

$$\therefore \frac{4}{6} = \frac{4 \times 10}{6 \times 10} = \frac{40}{60}$$

$$\frac{30}{20} = \frac{30 \times 2}{20 \times 2} = \frac{60}{40}.$$

not equivalent fractions.

(iv) $\frac{276}{115}$. $\frac{7}{13}$, $\frac{5}{11}$

Multiply Nr & dr of first and second fraction with '2'

$$\frac{7}{13} = \frac{7 \times 2}{13 \times 2} = \frac{14}{26}$$

$$\frac{5}{11} = \frac{5 \times 2}{11 \times 2} = \frac{10}{22}$$

$$\therefore \frac{14}{26} \neq \frac{10}{22}.$$

both are not equivalent fractions.

Solution - 10:

(i) $\frac{12}{27}$

$$\Rightarrow \frac{12 \times 3}{27 \times 3} = \frac{4}{9}$$

9

(ii) $\frac{150}{350} = \frac{150 \times 10}{350 \times 10}$

35 7

$= \frac{3}{7}$

(iii) $\frac{18}{81} = \frac{18^{2} \times 9^{1}}{81 \times 9}$

9

$= \frac{2}{9}$

(iv) $\frac{276^{12} \times 23}{115 \times 23} = \frac{12}{5}$

5

$\therefore \frac{276}{115} = \frac{12}{5}$

Solution -11:-

(i) $\frac{7}{8}, \frac{5}{14}$

Lcm of 8 and 14 $= 2 \times 2 \times 2 \times 7$

$= 8 \times 7$

$= 56.$

$2 \overline{)8, 14}$

$2 \overline{)4, 7}$

$2, 7$

To write $\frac{7}{8}$ with denominator 56, multiply with numerator and denominator of the fraction by 7

$\frac{7}{8} = \frac{7 \times 7}{8 \times 7} = \frac{49}{56}$

$\frac{5}{14} = \frac{5 \times 4}{14 \times 4} = \frac{20}{56}.$

(ii) $\frac{5}{6}, \frac{7}{16}$.

LCM of 6, 16 is $= 2 \times 2 \times 2 \times 2$
$= 16 \times 3$
$= 48$.

$2 \overline{)6, 16}$
$2 \overline{)3, 8}$
$2 \overline{)3, 4}$
$3, 2$

To write $\frac{5}{6}$ with 48, multiply the numerator and denominator of the given fraction with 8

$$\frac{5}{6} = \frac{5 \times 8}{6 \times 8} = \frac{40}{48}$$

$$\frac{7}{16} = \frac{7 \times 3}{16 \times 3} = \frac{21}{48}.$$

(iii) $\frac{3}{4}, \frac{5}{6}, \frac{7}{8}$.

LCM of 4, 6 and 8 is
$= 2 \times 2 \times 3 \times 2$
$= 24$

$2 \overline{)4, 6, 8}$
$2 \overline{)2, 3, 4}$
$1, 3, 2$

To write $\frac{3}{4}$ with 24, multiply the numerator and denominator of the given fraction with 6

$$\frac{3}{4} = \frac{3 \times 6}{4 \times 6} = \frac{18}{24}$$

$$\frac{5}{6} = \frac{5 \times 4}{6 \times 4} = \frac{20}{24}$$

$$\frac{7}{8} = \frac{7 \times 3}{8 \times 3} = \frac{21}{24}$$

Exercise. 6.4.

Solution-01.

(i) $\frac{5}{6} \square \frac{3}{6}$

$\frac{5}{6} > \frac{3}{6}$ (As the given fractions have same denominator 6, so these are like $5>3$, therefore $\frac{5}{6} > \frac{3}{6}$)

(ii) $\frac{2}{6} > 0$ (As the fractions have same denominator 6, so these are like $2>0$, therefore $\frac{2}{6} > 0$)

(iii) $\frac{4}{6} \square \frac{6}{6}$

$\frac{4}{6} < \frac{6}{6}$ (As the fractions have same denominator 6, so these are like $6>4$, therefore $\frac{4}{6} < \frac{6}{6}$)

(iv) $\frac{8}{6} \square \frac{5}{6}$.

$\frac{8}{6} > \frac{5}{6}$ (As the fractions have same denominator 6 so these are like $8>5$, therefore $\frac{8}{6} > \frac{5}{6}$)

Solution-02:-

(i) $\frac{3}{6} < \frac{5}{6}$ (As the fractions have same denominator 6 so these are like $5>3$, therefore $\frac{5}{6} > \frac{3}{6}$)

(ii) $\frac{2}{7} < \frac{2}{5}$ (As the fractions have same numerator 2. so these are like $\frac{2}{7} < \frac{2}{5}$ $(\because 7>5)$)

(iii) $\frac{3}{5} < \frac{4}{5}$

(iv) $\frac{4}{7} > \frac{4}{9}$

Solution -03:-

(i) $\frac{1}{2} \square \frac{1}{5}$.

Note that the given fractions are unlike with same numerator 1.

Since $2 < 5$, there fore $\frac{1}{2} > \frac{1}{5}$.

(ii) $\frac{2}{4} \square \frac{3}{6}$.

Lcm of 4 and 6 is

$= 2 \times 2 \times 3$

$= 12$.

$2 \overline{)4, 6}$
$2 \overline{)2, 3}$
$1, 3$

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

$\frac{3}{6} = \frac{3 \times 2}{6 \times 2} = \frac{6}{12}$.

$\frac{2}{4} = \frac{3}{6} = \frac{6}{12}$.

(iii) $\frac{7}{9} \square \frac{3}{9}$.

As the given fractions have same denominator 9. So these are like fractions since $7 > 3$,

there fore, $\frac{7}{9} > \frac{3}{9}$.

(iv) $\frac{3}{4} \square \frac{2}{8}$

$\frac{3}{4} = \frac{3 \times 2}{4 \times 2} = \frac{6}{8}$.

As the given fractions have some deromination 8, so these are like fractions since $8 > 2$.

there fore $\frac{6}{8} \square \frac{2}{8}$.

$$\frac{6}{8} > \frac{2}{8}$$

Solution -04:-

(i) Shaded portions as fractions are

$$\frac{3}{8}, \frac{6}{8}, \frac{4}{8}, \frac{1}{8}.$$

fractions can be written in the ascending order

$$\frac{1}{8} < \frac{3}{8} < \frac{4}{8} < \frac{6}{8}.$$

(ii) Shaded portions as fractions are

$$\frac{8}{9}, \frac{4}{9}, \frac{3}{9}, \frac{6}{9}.$$

fractions can be written in the ascending order

$$\frac{8}{9} > \frac{6}{9} > \frac{4}{9} > \frac{3}{9}$$

$$\frac{3}{9} < \frac{4}{9} < \frac{6}{9} < \frac{8}{9}.$$

Solution -05:-

Lcm of 5, 9 is 45

$$\frac{5}{9} = \frac{5 \times 9}{9 \times 5} = \frac{45}{45}$$

$$\frac{4}{5} = \frac{4 \times 9}{5 \times 9} = \frac{36}{45}.$$

$\frac{36}{45} < \frac{45}{45}$.

(ii) $\frac{9}{16}$ and $\frac{5}{9}$.

LCM of 16 and 9 are 144.

$\frac{9}{16} = \frac{9 \times 9}{16 \times 9}$

$= \frac{81}{144}$.

$\frac{5}{9} = \frac{5 \times 16}{9 \times 16} = \frac{80}{144}$.

$\frac{80}{144} < \frac{81}{144}$

$\frac{5}{16} < \frac{9}{16}$.

$\frac{9}{16} > \frac{5}{16}$.

Solution - 06:

(i) $\frac{5}{11} \square \frac{3}{7}$

LCM of 11 and 7 is 77.

$\frac{5}{11} = \frac{5 \times 7}{11 \times 7} = \frac{35}{77}$

$\frac{3}{7} = \frac{3 \times 11}{7 \times 11} = \frac{33}{77}$.

$\frac{35}{77} > \frac{33}{77}$

(ii) $\frac{8}{15} \square \frac{3}{5}$

LCM of 15 and 5 = 15.

$5 \overline{)15, 5}$
$3, 1$

$\frac{8}{15} = \frac{8}{15}$

$\frac{3}{5} = \frac{3 \times 3}{5 \times 3}$

$= \frac{9}{15}$

$\frac{9}{15} > \frac{8}{15}$.

(iii) $\frac{11}{14} \square \frac{29}{35}$.

LCM of 14 and 35

$7 \overline{)14, 35}$
$2, 5$

$= 7 \times 2 \times 5$

$= 14 \times 5$

$= 70$.

$\frac{11}{14} = \frac{11 \times 5}{14 \times 5} = \frac{55}{70}$.

$\frac{29}{35} = \frac{29 \times 2}{35 \times 2} = \frac{58}{70}$

$\frac{58}{70} > \frac{55}{70}$.

(iv) $\frac{13}{27} \square \frac{15}{48}$

LCM of 27, 48

$3 \overline{)27, 48}$
$3 \overline{)9, 12}$
$3 \overline{)3, 4}$
$1, 4$

$= 27 \times 4$

$= 108$

$\frac{13}{27} = \frac{52}{108}$; $\frac{15}{48}$

$\frac{13}{27} > \frac{15}{48}$

Solution-07:-

(i) $\frac{5}{17}, \frac{4}{9}, \frac{7}{12}$

Lcm of 17, 9, 12 is

$$3 \overline{)17, 9, 12}$$
$$17, 3, 4$$

$3 \times 17 \times 3 \times 4 = 36 \times 17$

$= 612$.

$$\begin{array}{r} 36 \\ \times 17 \\ \hline 612 \end{array}$$ 10

$\frac{5 \times 36}{17 \times 36} = \frac{180}{612}$

$\frac{4 \times 68}{9 \times 68} = \frac{272}{612}$.

$\frac{7 \times 51}{12 \times 51} = \frac{357}{612}$

$\frac{357}{612} > \frac{272}{612} > \frac{180}{612}$.

Numbers can be written in descending order as

$\frac{180}{612}$ ~~as~~ $\frac{357}{612}, \frac{272}{612}, \frac{180}{612}$.

$\frac{7}{12}, \frac{4}{9}, \frac{5}{17}$

Solution - 07

(ii) $\frac{7}{12}, \frac{11}{36}, \frac{37}{72}$.

Lcm of $\frac{7}{12}, \frac{11}{36}, \frac{37}{72}$

$$\begin{array}{r|l} 12 & 12, 36, 72 \\ 3 & 1, 3, 6 \\ \hline & 1, 1, 2 \end{array}$$

$12 \times 3 \times 2 = 36 \times 2$

$= 72$

$\frac{7}{12} = \frac{7 \times 6}{12 \times 6} = \frac{42}{72}$

$\frac{11}{36} = \frac{11 \times 2}{36 \times 2} = \frac{22}{72}$

$\frac{37}{72} = \frac{37}{72}$.

in descending order $\frac{42}{72}, \frac{37}{72}, \frac{22}{72}$

$\Rightarrow \frac{7}{12}, \frac{37}{72}, \frac{11}{36}$.

Solution-08:-

(i) Lcm of 8, 16, 6 is

$$\begin{array}{r|l} 2 & 8, 16, 6 \\ 4 & 4, 8, 3 \\ \hline & 1, 2, 3 \end{array}$$

$2 \times 4 \times 2 \times 3 = 24 \times 2 = 48$.

$\frac{7}{8} = \frac{7 \times 6}{8 \times 6} = \frac{42}{48}$

$\frac{15}{16} = \frac{15 \times 3}{16 \times 3} = \frac{45}{48}$

$\frac{5}{6} = \frac{5 \times 8}{6 \times 8} = \frac{40}{48}$.

$\frac{7}{8}, \frac{15}{16}, \frac{5}{6}$ can be written in ascending order as $\frac{5}{6}, \frac{7}{8}, \frac{15}{16}$.

(ii) $\frac{3}{4}, \frac{15}{22}, \frac{26}{33}$.

Lcm of 4, 22 and 33 is

$$\begin{array}{r|l} 11 & 4, 22, 33 \\ 2 & 4, 2, 3 \\ \hline & 2, 1, 3 \end{array}$$

$11 \times 2 \times 2 \times 3 = 44 \times 3$

$= 132$

$\frac{3}{4} = \frac{3 \times 33}{4 \times 33} = \frac{99}{132}$

$\frac{15}{22} = \frac{15 \times 6}{22 \times 6} = \frac{90}{132}$

$\frac{26}{33} = \frac{26 \times 4}{33 \times 4} = \frac{104}{132}$

in ascending order $\frac{15}{22}, \frac{3}{4}, \frac{26}{33}$.

Solution -08 (iii)

$\frac{5}{12}, \frac{1}{4}, \frac{7}{8}, \frac{5}{6}$

Lcm of 12, 4, 8 and 6 is

$$\begin{array}{r|l} 3 & 12, 4, 8, 6 \\ 4 & 4, 4, 8, 2 \\ 2 & 1, 1, 2, 2 \\ & 1, 1, 1, 1 \end{array}$$

$3 \times 4 \times 2 = 24.$

$\frac{5}{12} = \frac{5 \times 2}{12 \times 2} = \frac{10}{24}$

$\frac{1}{4} = \frac{1 \times 6}{4 \times 6} = \frac{6}{24}$

$\frac{7}{8} = \frac{7 \times 3}{8 \times 3} = \frac{21}{24}$

$\frac{5}{6} = \frac{5 \times 4}{8 \times 4} = \frac{20}{24}.$

$\therefore \frac{5}{12}, \frac{1}{4}, \frac{7}{8}$ and $\frac{5}{6}$ can be written in ascending order as

$\frac{1}{4}, \frac{5}{12}, \frac{5}{6}, \frac{7}{8}$

$\frac{6}{24} < \frac{10}{24} < \frac{20}{24} < \frac{21}{24}$

$\frac{1}{4} < \frac{5}{12} < \frac{5}{6} < \frac{7}{8}.$

Exercise- 6.5.

Solution-01:-

(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) $1 - \frac{2}{3} = \frac{1\times3-2}{3} = \frac{3-2}{3} = \frac{1}{3}$

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

$= \frac{4}{13}$.

(v) $2\frac{4}{5} + 3\frac{3}{5} = \frac{2\times5+4}{5} + \frac{3\times5+3}{5}$

$= \frac{14}{5} + \frac{18}{5}$

$= \frac{14+18}{5}$

$= \frac{32}{5}$.

(vi) $3\frac{2}{7} - 1\frac{4}{7} = \frac{3\times7+2}{7} - \frac{1\times7-4}{7}$

$= \frac{21+2}{7} - \frac{7-4}{7}$

$= \frac{23-3}{7} = \frac{20}{7}$.

Solution -02

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

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

$= \frac{4}{10}$

$\therefore \frac{7}{10} - \frac{3}{10} = \frac{4}{10}$

$\frac{7}{10} - \frac{4}{10} = \frac{3}{10}$

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

$\Rightarrow \frac{12}{27} - \frac{5}{27} = \frac{12-5}{27} = \frac{7}{27}$

$\frac{7}{27} + \frac{5}{27} = \frac{7+5}{27} = \frac{12}{27}$

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

$\square = \frac{2}{7} + \frac{5}{7}$

$\frac{2+5}{7} = \frac{7}{7} = 1$

$\therefore 1 - \frac{5}{7} = \frac{1 \times 7 - 5}{7} = \frac{2}{7}$

Solution - 03

(i) $\frac{2}{3} + \frac{3}{4} = \frac{2\times4}{3\times4} + \frac{3\times3}{3\times4}$ [Lcm of 3,4 = 12]

$= \frac{8}{12} + \frac{9}{12}$

$= \frac{8+9}{12}$

$= \frac{17}{12}$.

(ii) $\frac{5}{7} - \frac{4}{9} = \frac{5\times9}{7\times9} - \frac{4\times7}{9\times7}$ [Lcm of 9,7 = 63]

$= \frac{45}{63} - \frac{28}{63}$

$= \frac{45-28}{63}$

$= \frac{17}{63}$

(iii) $\frac{1}{2} + \frac{2}{5} = \frac{1\times5}{2\times5} + \frac{3\times2}{5\times2}$ [Lcm of 2,5 = 10]

$= \frac{5}{10} + \frac{6}{10}$

$= \frac{5+6}{10} = \frac{11}{10}$

(iv) $1\frac{4}{9} + 3\frac{3}{12} = \frac{1\times9+4}{9} + \frac{3\times12+3}{12}$

$= \frac{14\times4}{9\times4} + \frac{39\times3}{12\times3}$. [Lcm of 9,12 = 36]

$= \frac{56}{36} + \frac{117}{36} = \frac{173}{36} = 4\frac{29}{36}$.

(v) $2\frac{1}{4} - 1\frac{7}{10} = \frac{2\times4+1}{4} - \frac{1\times10+7}{10}$

$= \frac{9}{4} - \frac{17}{10}$ [∵ Lcm of 4 and 10 = 20]

$= \frac{9\times5}{4\times5} - \frac{17\times2}{10\times2}$

$= \frac{45}{20} - \frac{34}{20}$.

$= \frac{11}{20}$.

(vi) $3\frac{5}{6} - 2\frac{7}{15} = \frac{3\times6+5}{6} - \frac{2\times15+7}{15}$

$= \frac{23}{6} - \frac{37}{15}$ [Lcm of 6, 15 = 30]

$= \frac{23\times5}{6\times5} - \frac{37\times2}{15\times2}$

$= \frac{115}{30} - \frac{74}{30}$

$= \frac{115-74}{30}$

$= \frac{41}{30}$.

Solution -04:-

(i) $1\frac{7}{3} + 2\frac{1}{2} + \frac{3}{4} = \frac{1\times3+2}{3} + \frac{2\times2+1}{2} + \frac{3}{4}$

Lcm of 3, 2, 4 = 12

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

$= \frac{5\times4}{3\times4} + \frac{5\times6}{2\times6} + \frac{3\times3}{4\times3}$

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

Solution 04(ii)

$$3\frac{2}{9} + 2\frac{1}{3} + 2\frac{7}{12} = \frac{3\times9+2}{9} + \frac{2\times3+1}{3} + \frac{2\times12+7}{12}$$

$$= \frac{27+2}{9} + \frac{7}{3} + \frac{24+7}{12}$$

Lcm of 9, 3, 12 = 36

$$= \frac{29\times4}{9\times4} + \frac{7\times12}{3\times12} + \frac{31\times3}{12\times3}$$

$$= \frac{116+84+93}{36}$$

$$= \frac{293}{36}$$

$$= 8\frac{5}{36}$$

(iii) $\frac{7}{12} + \frac{8}{9} - \frac{5}{6}$

Lcm of 12, 9, 6 is = 36

$$\frac{7\times3}{12\times3} + \frac{8\times4}{9\times4} - \frac{5\times6}{6\times6} = \frac{21}{36} + \frac{32}{36} - \frac{30}{36}$$

$$= \frac{21+32-30}{36}$$

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

$$= \frac{23}{36}$$

(iv) $1\frac{3}{25} + \frac{7}{20} - \frac{2}{5} = \frac{1\times25+3}{25} + \frac{7}{20} - \frac{2}{5}$

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

Lcm of 25, 20, 5 is 100

$$= \frac{28\times4}{25\times4} + \frac{7\times5}{20\times5} - \frac{2\times20}{5\times20}$$

$$= \frac{112 + 35 - 40}{100}$$

$$= \frac{72 + 35}{100}$$

$$= \frac{107}{100}$$

$$= 1\frac{7}{100}$$

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

$$\frac{1\times14+13}{14} - \frac{2\times6+5}{6} + \frac{1\times7+6}{7}$$

$$= \frac{14+13}{14} - \frac{12+5}{6} + \frac{13}{7}$$

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

Lcm of 14, 6, 7 is 42

$$= \frac{27\times3}{14\times3} - \frac{17\times7}{6\times7} + \frac{13\times6}{7\times6}$$

$$= \frac{81 - 119 + 78}{42}$$

$$= \frac{159 - 119}{42}$$

$$= \frac{40}{42}$$

$$= \frac{20}{21}$$