

Fractions

EXERCISE 14(A)

Question 1.

For each expression, given below, write a fraction :

(i) 2 out of 7 =

(ii) 5 out of 17 =

(iii) three-fifths =

Solution:

(i) 2 out of 7 = $\frac{2}{7}$

(ii) 5 out of 17 = $\frac{5}{17}$

(iii) three-fifths = $\frac{3}{5}$

Question 2.

Fill in the blanks :

(i) $\frac{5}{8}$ isfraction.

(iii) $\frac{-15}{-15}$ is fraction.

(v) The value of $\frac{5}{-5}$ =

(vii) $\frac{2}{15}$ and $\frac{7}{15}$ arefractions.

(ii) $\frac{8}{5}$ is fraction.

(iv) The value of $\frac{5}{5}$ =

(vi) $3\frac{3}{10}$ is fraction.

Myclass24
Your Class. Your Pace.

(viii) $\frac{23}{12}$ and $\frac{23}{15}$ are fractions.

(ix) $\frac{6}{15}$ and $\frac{28}{70}$ are fractions.

(x) $\frac{8}{24}$ and $\frac{8}{32}$ are not fractions.

(xi) $3\frac{2}{13} = \frac{3 \times 13 + \dots}{13} = \dots$

(xii) $-4\frac{3}{5} = \dots = \dots$

Solution:

- (i) Proper
- (ii) Improper
- (iii) Improper
- (iv) 1
- (v) -1
- (vi) Mixed
- (vii) Like
- (viii) Unlike fraction
- (ix) Equal fraction
- (x) Like

(xi) $+ 2 = \frac{41}{13}$

(xii) $-\frac{(4 \times 5 + 3)}{5} = -\frac{23}{5}$



Question 3.

From the following fractions, separate :

- (i) Proper fractions
- (ii) Improper fractions :

$\frac{2}{9}, \frac{4}{3}, \frac{7}{15}, \frac{11}{20}, \frac{20}{11}, \frac{18}{23}$ and $\frac{27}{35}$.

Solution:

We know that proper fraction is a fraction whose numerator is less than its denominator and improper fraction is the fraction whose numerator is greater than its denominator :

$\frac{2}{9}, \frac{7}{15}, \frac{11}{20}, \frac{18}{23}$ and $\frac{27}{35}$ are proper

fractions and $\frac{4}{3}, \frac{20}{11}$ are improper fractions.

Question 4.

Change the following mixed fractions to improper fractions :

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

$$(ii) 3\frac{1}{4}$$

$$(iii) 7\frac{1}{8}$$

$$(iv) 2\frac{1}{11}$$

Solution:

$$(i) 2\frac{1}{5} = \frac{2 \times 5 + 1}{5} = \frac{10 + 1}{5} = \frac{11}{5}$$

$$(ii) 3\frac{1}{4} = \frac{3 \times 4 + 1}{4} = \frac{12 + 1}{4} = \frac{13}{4}$$

$$(iii) 7\frac{1}{8} = \frac{7 \times 8 + 1}{8} = \frac{56 + 1}{8} = \frac{57}{8}$$

$$(iv) 2\frac{1}{11} = \frac{2 \times 11 + 1}{11} = \frac{22 + 1}{11} = \frac{23}{11}$$

Question 5.

Change the following improper fractions to mixed fractions :

$$(i) \frac{100}{17}$$

$$(ii) \frac{81}{11}$$

$$(iii) -\frac{209}{7}$$

$$(iv) -\frac{113}{15}$$

Solution:

$$(i) \frac{100}{17} = 5\frac{15}{17}$$

$$(ii) \frac{81}{11} = 7\frac{4}{11}$$

$$(iii) -\frac{209}{7} = -29\frac{6}{7}$$

$$(iv) -\frac{113}{15} = -7\frac{8}{15}$$

Question 6.

Change the following groups of fractions to like fractions :

$$(i) \frac{1}{3}, \frac{2}{5}, \frac{3}{4}, \frac{1}{6} \quad (ii) \frac{5}{6}, \frac{7}{8}, \frac{11}{12}, \frac{3}{10}$$

$$(iii) \frac{2}{7}, \frac{7}{8}, \frac{5}{14}, \frac{9}{16}$$

Solution:

$$(i) \frac{1}{3}, \frac{2}{5}, \frac{3}{4}, \frac{1}{6}$$

L.C.M. of denominators 3, 5, 4, 6 = 60

$$\begin{array}{r|l} 2 & 3, 5, 4, 6 \\ \hline 3 & 3, 5, 2, 3 \\ \hline & 1, 5, 2, 1 \end{array}$$

$$= 2 \times 3 \times 1 \times 5 \times 2 \times 1 = 60$$

$$\text{Now, } \frac{1}{3} = \frac{1 \times 20}{3 \times 20} = \frac{20}{60};$$

$$\frac{2}{5} = \frac{2 \times 12}{5 \times 12} = \frac{24}{60}; \frac{3}{4} = \frac{3 \times 15}{4 \times 15} = \frac{45}{60}$$

$$\frac{1}{6} = \frac{1 \times 10}{6 \times 10} = \frac{10}{60}$$

mc24 Myclass24
Your Class. Your Pace.

$$(ii) \frac{1}{3}, \frac{2}{5}, \frac{3}{4} \text{ and } \frac{1}{6} = \frac{20}{60}, \frac{24}{60}, \frac{45}{60}, \frac{10}{60}$$

$$\frac{5}{6}, \frac{7}{8}, \frac{11}{12}, \frac{3}{10}$$

L.C.M. of denominators 6, 8, 12, 10
= 120

$$\begin{array}{r|l} 2 & 6, 8, 12, 10 \\ \hline 2 & 3, 4, 6, 5 \\ \hline 3 & 3, 2, 3, 5 \\ \hline & 1, 2, 1, 5 \end{array}$$

$$= 2 \times 2 \times 3 \times 2 \times 5 = 120$$

$$\text{Now, } \frac{5}{6} = \frac{5 \times 20}{6 \times 20} = \frac{100}{120};$$

$$\frac{7}{8} = \frac{7 \times 15}{8 \times 15} = \frac{105}{120}; \frac{11}{12} = \frac{11 \times 10}{12 \times 10}$$

$$= \frac{110}{120}; \frac{3}{10} = \frac{3 \times 12}{10 \times 12} = \frac{36}{120}$$

$$\therefore \frac{5}{6}, \frac{7}{8}, \frac{11}{12}, \frac{3}{10} = \frac{100}{120}, \frac{105}{120}, \frac{110}{120}, \frac{36}{120}$$

$$(iii) \frac{2}{7}, \frac{7}{8}, \frac{5}{14}, \frac{9}{16}$$

L.C.M. of denominators 7, 8, 14, 16 = 112

$$\begin{array}{r|l} 2 & 7, 8, 14, 16 \\ \hline 7 & 7, 4, 7, 8 \\ \hline 4 & 1, 4, 1, 8 \\ \hline & 1, 1, 1, 2 \end{array}$$

$$= 2 \times 7 \times 4 \times 2 = 112$$

$$\begin{aligned} \text{Now, } \frac{2}{7} &= \frac{2 \times 16}{7 \times 16} = \frac{32}{112}; \quad \frac{7}{8} = \frac{7 \times 14}{8 \times 14} \\ &= \frac{98}{112}; \quad \frac{5}{14} = \frac{5 \times 8}{14 \times 8} = \frac{40}{112}; \quad \frac{9}{16} \\ &= \frac{9 \times 7}{16 \times 7} = \frac{63}{112} \end{aligned}$$

$$\therefore \frac{2}{7}, \frac{7}{8}, \frac{5}{14}, \frac{9}{16}$$

$$= \frac{32}{112}, \frac{98}{112}, \frac{40}{112}, \frac{63}{112}$$

mc²⁴

Myclass24
Your Class. Your Pace.