

Question 1.

Show the fractions  $\frac{1}{6}$ ,  $\frac{2}{6}$ ,  $\frac{3}{6}$ ,  $\frac{4}{6}$ ,  $\frac{5}{6}$ ,  $\frac{6}{6}$  and  $\frac{8}{6}$  on the number line. Replace '.....' by an appropriate sign" between given fractions:

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

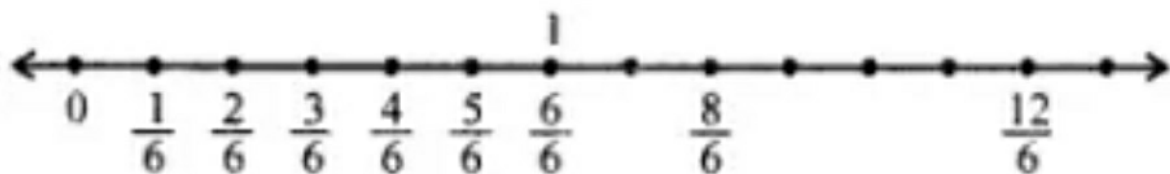
$$(ii) \frac{2}{6} \dots 0$$

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

$$(iv) \frac{8}{6} \dots \frac{5}{6}$$

Solution:

Number line:



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

$$(ii) \frac{2}{6} > 0$$

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

$$(iv) \frac{8}{6} > \frac{5}{6}$$

Question 2.

Compare the given fractions and replace '....' by an appropriate sign "

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

$$(ii) \frac{2}{7} \dots \frac{2}{5}$$

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

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

Solution:

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

[As these are like fractions with denominator 6]

Since  $3 < 5$

$$\therefore \frac{3}{6} < \frac{5}{6}$$

$$(ii) \frac{2}{7} < \frac{2}{5}$$

[Since these are unlike fractions with same numerator 2]

Since  $5 < 7$

$$\therefore \frac{2}{7} < \frac{2}{5}$$

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

[As these are like fractions with denominator is 5]

Since  $3 < 4$

$$\therefore \frac{3}{5} < \frac{4}{5}$$

---

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

[As these are unlike fractions with 4 as numerator

Since  $7 < 9$

$$\therefore \left[ \frac{4}{7} > \frac{4}{9} \right]$$

Question 3.

Replace '....' by an appropriate sign '<, = or >' between the given fractions:

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

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

$$(iii) \frac{7}{9} \dots \frac{3}{9}$$

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

Solution:

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

As in denominator  $2 < 5$ ,  $\therefore \frac{1}{2} > \frac{1}{5}$

$$(ii) \frac{2}{4} = \frac{3}{6} \Rightarrow \frac{1}{2} = \frac{1}{2}$$

$$\left[ \because \frac{2}{4} = \frac{1}{2} \text{ and } \frac{3}{6} = \frac{1}{2} \right]$$

$$(iii) \frac{7}{9} > \frac{3}{9}$$

$[\because \text{As in Numerator } 3 < 7]$

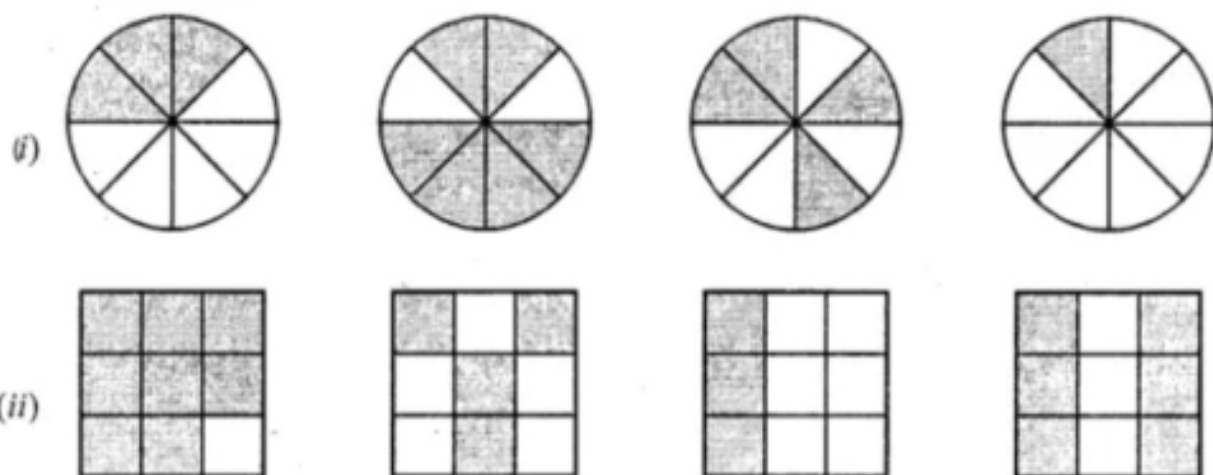
$$(iv) \frac{3}{4} > \frac{2}{8}$$

$[\text{As } \frac{2}{8} = \frac{1}{4} \text{ and in numerator } 3 > 1]$

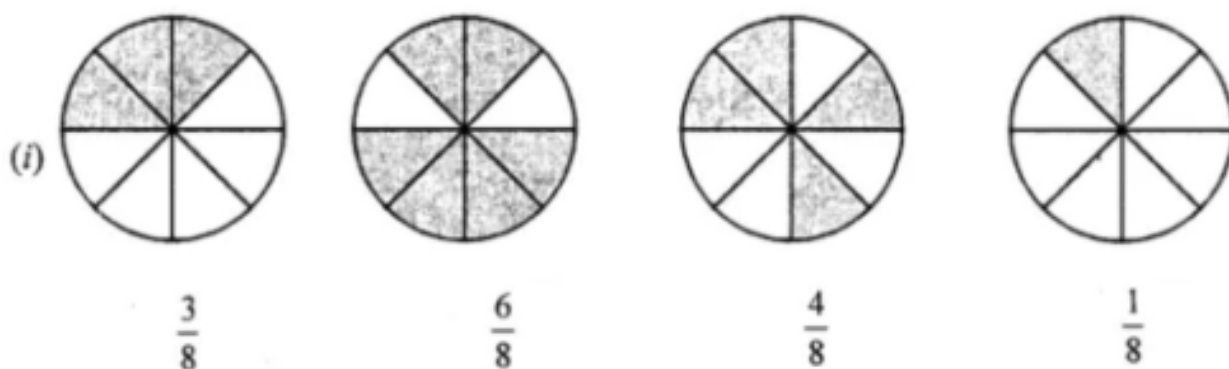
$$\left[ \frac{3}{4} > \frac{1}{4} \text{ i.e. } \frac{3}{4} > \frac{2}{8} \right]$$

Question 4.

Write the shaded portions as fractions. Arrange them in ascending order using appropriate sign between fractions:

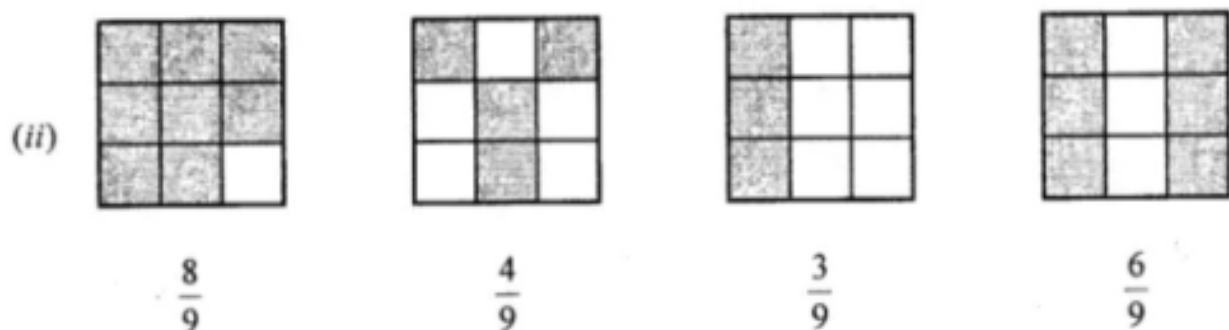


Solution:



In ascending order, these are

$$\frac{1}{8}, \frac{3}{8}, \frac{4}{8}, \frac{6}{8} \text{ i.e., } \frac{1}{8} < \frac{3}{8} < \frac{4}{8} < \frac{6}{8}$$



In ascending order, these are

$$\frac{3}{9}, \frac{4}{9}, \frac{6}{9}, \frac{8}{9} \text{ i.e., } \frac{3}{9} < \frac{4}{9} < \frac{6}{9} < \frac{8}{9}$$

Question 5.

Compare the following pairs of fractions:

(i)  $\frac{5}{9}$  and  $\frac{4}{5}$

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

Solution:

(i)  $\frac{5}{9}$  and  $\frac{4}{5}$

LCM of 9 and 5 =  $9 \times 5 = 45$

Write given fraction as like fraction

Now,  $\frac{5}{9} \Rightarrow \frac{5 \times 5}{9 \times 5} = \frac{25}{45}$

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

Here,  $\frac{25}{45} < \frac{36}{45}$

$\therefore \frac{5}{9} < \frac{4}{5}$

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

LCM of 16 and 9 = 144

Write given fractions as like fractions

$$\text{Now, } \frac{9}{16} \Rightarrow \frac{9 \times 9}{16 \times 9} = \frac{81}{144}$$

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

$$\text{Here, } \frac{81}{144} > \frac{80}{144}$$

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

Question 6.

Fill in the boxes by the symbol  $<$  or  $>$  to make the given statements true:

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

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

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

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

Solution:

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

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

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

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

Question 7.

Arrange the given fractions in descending order:

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

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

Solution:

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

The LCM of 17, 9 and 12

$$= 3 \times 3 \times 17 \times 4 = 612$$

Make above fractions as like fractions

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

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

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

$$\text{Here, } \frac{357}{612} > \frac{272}{612} > \frac{180}{612}$$

Hence, in descending order, these are

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



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

The LCM of 12, 36, 76

$$= 2 \times 2 \times 3 \times 3 \times 2 = 72$$

Make above fractions as like fractions

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

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

$$\frac{37}{72} \Rightarrow \frac{37 \times 1}{72 \times 1} = \frac{37}{72}$$

In descending order, these are

$$\text{Hence, } \frac{42}{72} > \frac{37}{72} > \frac{22}{72}$$

$$\frac{7}{12} > \frac{37}{72} > \frac{11}{36}$$

Question 8.

Arrange the given fractions in the ascending order:

$$(i) \frac{7}{8}, \frac{15}{16}, \frac{5}{6}$$

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

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

Solution:

$$(i) \frac{7}{8}, \frac{15}{16}, \frac{5}{6}$$

LCM of 8, 16, 6 = 48

Making them in like fractions

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

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

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

In descending order, these are

$$\text{Hence, } \frac{40}{48} < \frac{42}{48} < \frac{45}{48}$$

$$\frac{5}{6} < \frac{7}{8} < \frac{15}{16}$$

---

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

LCM of 4, 22 and 33 = 132, so making them like fractions

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

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

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

$$\frac{90}{132} < \frac{99}{132} < \frac{104}{132}$$

Hence,  $\frac{15}{22} < \frac{3}{4} < \frac{26}{33}$

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

The LCM of 12, 4, 8, 6 = 24

Hence, making them as like fractions

$$\frac{5}{12} = \frac{5 \times 2}{12 \times 2} = \frac{10}{24}, \frac{1}{4} = \frac{1 \times 6}{4 \times 6} = \frac{6}{24}$$

$$\frac{7}{8} = \frac{7 \times 3}{8 \times 3} = \frac{21}{24}, \frac{5}{6} = \frac{5 \times 4}{6 \times 4} = \frac{20}{24}$$

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

Hence the given fraction in ascending order

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

