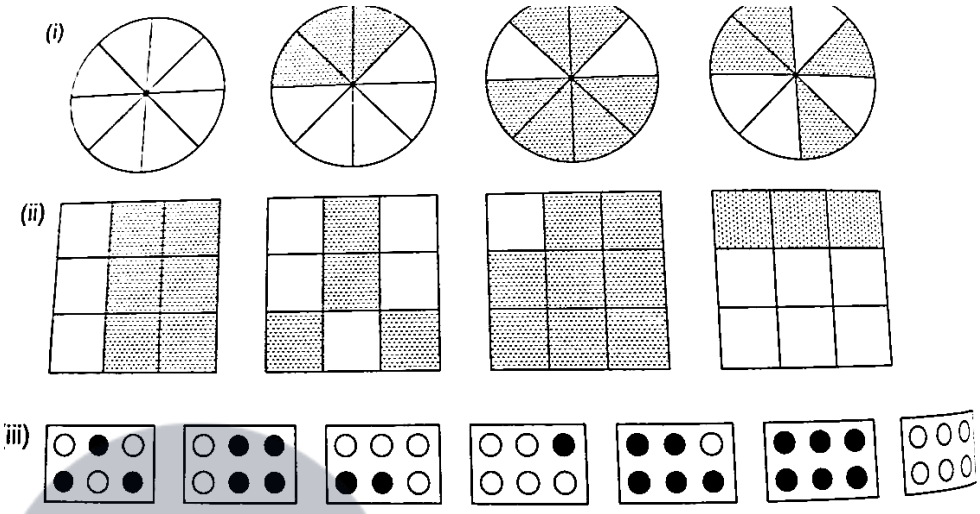
Exercise 6.7

Question: 1

Write each fraction. Arrange them in ascending and descending order using correct sign ' < ' , ' = ' > ' between the fractions:

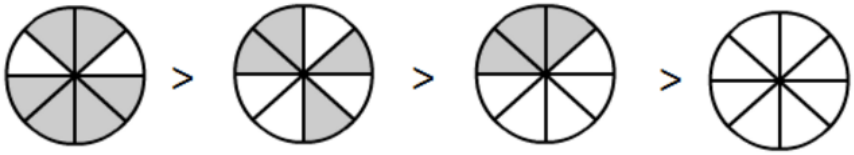


Solution:

(i) Ascending order

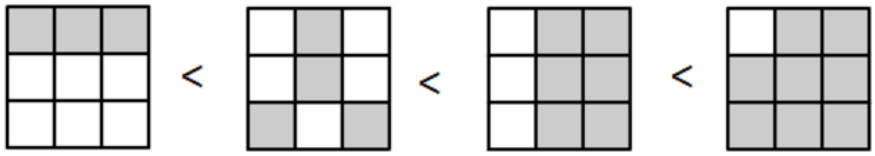
Fraction= $\frac{0}{8}$ Fraction= $\frac{3}{8}$ Fraction= $\frac{4}{8}$ Fraction= $\frac{6}{8}$

Descending order



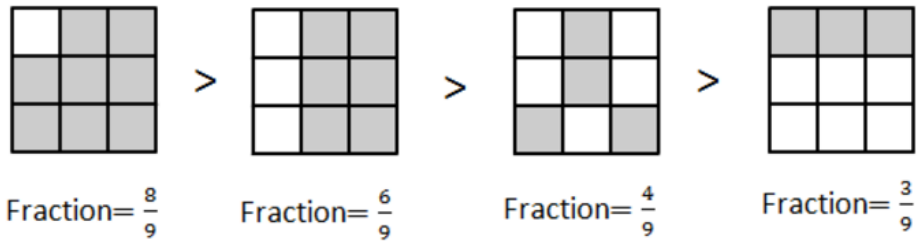
Fraction= $\frac{6}{8}$ Fraction= $\frac{4}{8}$ Fraction= $\frac{3}{8}$ Fraction= $\frac{0}{8}$

(ii) Ascending order



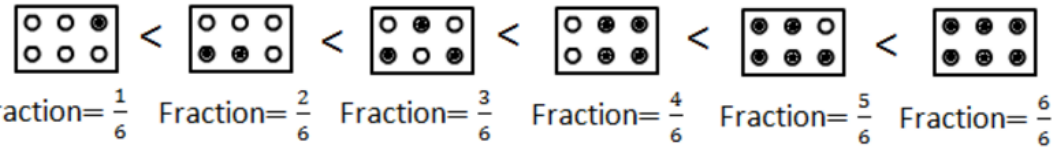
Fraction= $\frac{3}{9}$ Fraction= $\frac{4}{9}$ Fraction= $\frac{6}{9}$ Fraction= $\frac{8}{9}$

Descending order



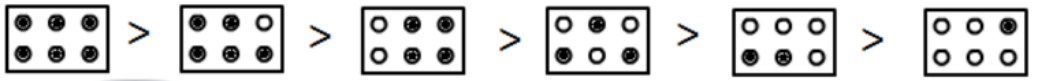
Fraction= $\frac{8}{9}$ Fraction= $\frac{6}{9}$ Fraction= $\frac{4}{9}$ Fraction= $\frac{3}{9}$

(iii) Ascending order



Fraction= $\frac{1}{6}$ Fraction= $\frac{2}{6}$ Fraction= $\frac{3}{6}$ Fraction= $\frac{4}{6}$ Fraction= $\frac{5}{6}$ Fraction= $\frac{6}{6}$

Descending order



Fraction= $\frac{6}{6}$ Fraction= $\frac{5}{6}$ Fraction= $\frac{4}{6}$ Fraction= $\frac{3}{6}$ Fraction= $\frac{2}{6}$ Fraction= $\frac{1}{6}$

Question: 2

Mark 2/6,4/6, 8/6, 6/6 on the number line and put appropriate signs between fractions given below:

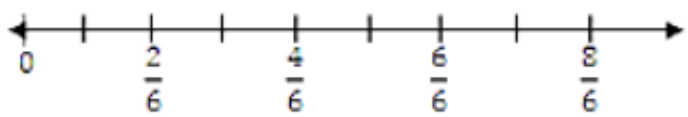
i) $\frac{5}{6}$ _ _ _ _ $\frac{2}{6}$

ii) $\frac{3}{6}$ _ _ _ _ $\frac{0}{6}$

iii) $\frac{1}{6}$ _ _ _ _ $\frac{6}{6}$

iv) $\frac{8}{6}$ _ _ _ _ $\frac{5}{6}$

Solution:



i) 56 > 26 because 5 > 2 and the denominator is the same.

ii) 36 > 06 because 3 > 0 and the denominator is the same.

iii) 16 < 66 because 6 > 1 and the denominator is the same.

iv) 86 > 56 because 8 > 5 and the denominator is the same.

Question: 3

Compare the following fractions and put an appropriate:

i) $\frac{3}{6} - - - - \frac{5}{6}$

ii) $\frac{4}{5} - - - - \frac{0}{5}$

iii) $\frac{3}{20} - - - - \frac{4}{20}$

iv) $\frac{1}{7} - - - - \frac{1}{4}$

Solution:

i) 36 < 56 because 3 < 5 and the denominator is the same.

ii) 45 > 05 because 4 > 0 and the denominator is the same.

iii) 320 < 420 because 3 < 4 and the denominator is the same.

iv) 17 < 14 because 7 > 4; if the numerator is the same, then the fraction that has smaller denominator is greater.

Question: 4

Compare the following fractions using the symbol > or <:

i) 6/7 and 6/11

ii) 3/7 and 5/7

iii) 2/3 and 8/12

iv) 1/5 and 4/15

v) 8/3 and 8/13

vi) 4/9 and 15/8

Solution:

i) 6/7 > 6/11 because if the numerator is the same, then the fraction with smaller denominator is greater.

ii) 3/7 < 5/7 because 3 < 5 and the denominator is the same.

iii) $\frac{8}{12}=\frac{2\times2\times2}{2\times2\times3}=\frac{2}{3}$ therefore, $\frac{2}{3}=\frac{8}{12}$

iv) $\frac{1}{5}=\frac{1}{5}\times\frac{3}{3}=\frac{3}{15}$, therefore $\frac{3}{15}<\frac{4}{15}$

(Because 3 < 4 and the denominator is the same. Therefore, 1/15 < 4/15)

v) 8/3 < 8/13 Because if the numerator is the same, then the fraction with smaller denominator is greater.

vi) $\frac{4}{9}=\frac{4}{9}\times\frac{8}{8}=\frac{32}{72}$

$\frac{15}{8}=\frac{15}{8}\times\frac{9}{9}=\frac{135}{72}\frac{32}{72}<\frac{135}{72}$

(Because 135 > 32 and the denominator is the same)

Therefore, 4/9 < 15/8

Question: 5

The following fractions represent just three different numbers. Separate them in to three groups of equal fractions by changing each one to its simplest form:

i) 2/12

ii) 3/15

iii) 8/50

iv) 16/100

v) 10/60

vi) 15/75

vii) 12/60

viii) 16/96

ix) 12/75

x) 12/72

xi) 3/18

xii) 4/25

Solution:

i) 2/12

HCF of 2 & 12 is 2.

Divide both the numerator & denominator by the HCF of 2 &12

$$2 \div \frac{2}{12} \div 2 = \frac{1}{6}$$

ii) 3/15

HCF of 3 & 15 is 3.

Divide both the numerator & denominator by the HCF of 3 &15.

$$3 \div \frac{3}{15} \div 3 = \frac{1}{5}$$

iii) 8/50

HCF of 8 & 50 is 2.

Divide both the numerator & denominator by the HCF of 8 & 50.

$$8 \div \frac{2}{50} \div 2 = \frac{4}{25}$$

iv) 16/100

HCF of 16 & 100 is 4.

Divide both the numerator & denominator by the HCF of 16 & 100.

$$16 \div \frac{4}{100} \div 4 = \frac{4}{25}$$

v) 10/60

HCF of 10 & 60 is 10.

Divide both the numerator & denominator by the HCF of 10 & 60.

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

vi) 15/75

HCF of 15 & 75 is 15.

Divide both the numerator & denominator by the HCF of 15 & 75.

$$15 \div \frac{15}{75} \div 15 = \frac{1}{5}$$

vii) 12/60

HCF of 12 & 60 is 12.

Divide both the numerator & denominator by the HCF of 12 & 60.

$$12 \div \frac{12}{60} \div 12 = \frac{1}{5}$$

viii) 16/96

HCF of 16 & 96 is 16.

Divide both the numerator & denominator by the HCF of 16 & 96

$$16 \div \frac{16}{96} \div 16 = \frac{1}{6}$$

ix) 12/75

HCF of 12 & 75 is 3.

Divide both the numerator & denominator by the HCF of 12 & 75.

$$12 \div \frac{3}{75} \div 3 = \frac{4}{25}$$

x) 12/72

HCF of 12 & 72 is 12.

Divide both the numerator & denominator by the HCF of 12 & 72

$$12 \div \frac{12}{72} \div 12 = \frac{1}{6}$$

xi) 3/18

HCF of 3 & 18 is 3.

Divide both the numerator & denominator by the HCF of 3 & 18.

$$3 \div \frac{3}{18} \div 3 = \frac{1}{6}$$

xii) 4/25

HCF of 4 & 25 is 1.

Divide both the numerator & denominator by the HCF of 4 & 25

$$4 \div \frac{1}{25} \div 1 = \frac{4}{25}$$

Three groups of equal fractions:

$$\frac{2}{12}, \frac{10}{60}, \frac{16}{96}, \frac{12}{72}, \frac{3}{18}; \frac{3}{15}, \frac{8}{50}, \frac{16}{100}, \frac{15}{75}, \frac{12}{60}, \frac{12}{75}, \frac{4}{25}$$

Question: 6

Isha read 25 pages of a book containing 100 pages. Nagma read 1/2 of the same book. Who read less?

Solution:

Total pages in the book = 100

$$\text{Fraction of the book read by Isha} = 25 \div \frac{25}{100} \div 25 = \frac{1}{4}$$

(Dividing numerator & denominator by the HCF of 25 & 100)

Fraction of the book read by Nagma = 12

Now, compare 14 & 12.

LCM of 4 & 2 is 4.

Convert each fraction into equivalent fraction with 4 as its denominator.

$$1 \times \frac{1}{4} \times 1 \text{ and } 1 \times \frac{2}{2} \times \frac{2}{14} \text{ and } \frac{1}{4} = \frac{2}{4}$$

Therefore, Isha read less.

Question: 7

Arrange the following fractions in the ascending order:

i) $\frac{2}{9}, \frac{7}{9}, \frac{3}{9}, \frac{4}{9}, \frac{1}{9}, \frac{6}{9}, \frac{5}{9}$

ii) $\frac{7}{8}, \frac{7}{25}, \frac{7}{11}, \frac{7}{18}, \frac{7}{10}$

iii) $\frac{37}{47}, \frac{37}{50}, \frac{37}{100}, \frac{37}{100}, \frac{37}{85}, \frac{37}{41}$

iv) $\frac{3}{5}, \frac{1}{5}, \frac{4}{5}, \frac{2}{5}$

v) $\frac{2}{5}, \frac{3}{4}, \frac{1}{2}, \frac{3}{5}$

vi) $\frac{3}{8}, \frac{3}{12}, \frac{3}{6}, \frac{3}{4}$

vii) $\frac{4}{6}, \frac{3}{8}, \frac{6}{12}, \frac{5}{16}$

Solution:

i) 2/9, 7/9, 3/9, 4/9, 1/9, 6/9, 5/9, when the denominators are the same and numerators are different, then the fraction with greater numerator has a larger

value.

ii) 7/8, 7/25, 7/11, 7/18, 7/10, when numerator are the same and denominators are different, the fraction with greater denominator has a smaller value.

iii) 37/47, 37/50, 37/100, 37/100, 37/85, 37/41

When numerators are the same and denominator has a smaller value.

iv) 3/5, 1/5, 4/5, 2/5

When denominators are the same and numerators are different, then the fraction with greater numerator has a larger value.

v) LCM of 2, 4 and 5 is 20

$$\frac{2}{5}=\frac{2}{5}\times\frac{4}{4}=\frac{8}{20}$$

$$\frac{3}{4}=\frac{3}{4}\times\frac{5}{5}=\frac{15}{20}$$

$$\frac{2}{5}=\frac{2}{5}\times\frac{4}{4}=\frac{8}{20}$$

vi) 3/12, 3/8, 3/6, 3/4.

vii) 5/16, 3/8, 6/12, 4/6

Question: 8

Arrange in descending order in each of the following using symbols >:

i) 8/17, 8/9, 8/5, 8/13

ii) 5/9, 3/12, 1/3, 4/15

Solution:

i) 8/5 > 8/9 > 8/13 > 8/17

ii) 5/9 > 1/3 > 3/12 > 4/15

Question: 9

Find answers to the following. Write and indicate how you solved them.

i) Is 5/9 equal to 4/5?

ii) Is 9/16 equal to 5/9?

iii) Is 4/5 equal to 16/20?

iv) Is 1/15 equal to 4/30?

Solution:

i) No. $5 \times 5 \neq 9 \times 4$

ii) No. $9 \times 9 \neq 16 \times 5$

iii) yes. $4 \times 20 = 16 \times 5$

iv) No. $1 \times 30 = 15 \times 4$