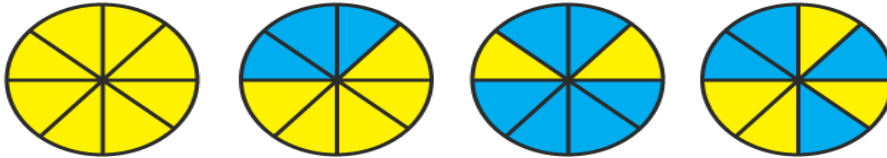


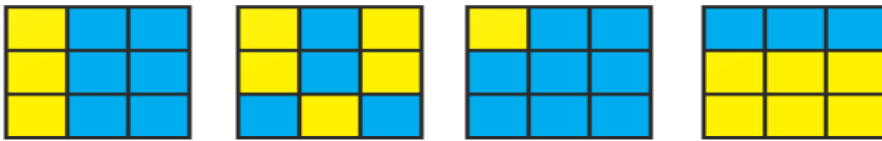
EXERCISE 6.7

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

(i)



(ii)

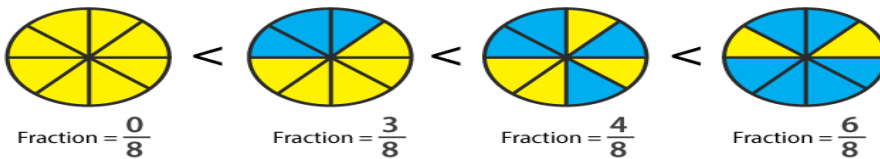


(iii)

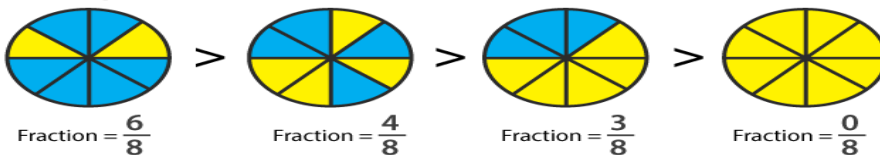


Solution:

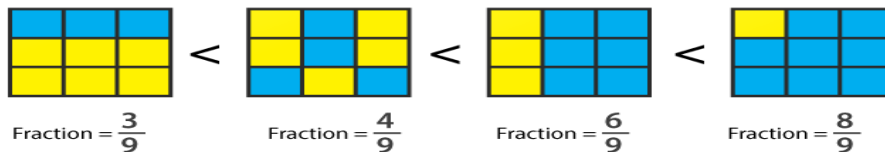
(i) Ascending order



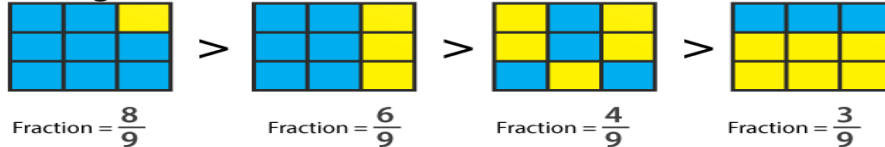
Descending order



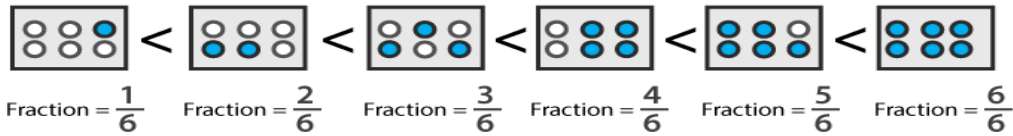
(ii) Ascending order



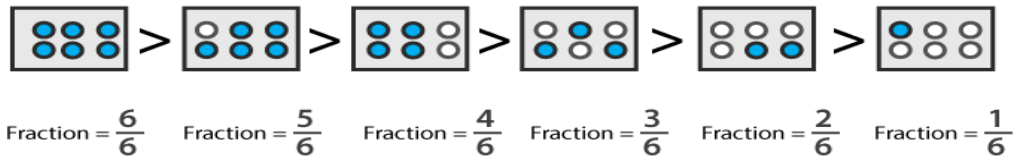
Descending order



(iii) Ascending order



Descending order



2. Mark $\frac{2}{6}$, $\frac{4}{6}$, $\frac{8}{6}$ and $\frac{6}{6}$ 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) We know that $\frac{5}{6} > \frac{2}{6}$ as $5 > 2$ and the denominator is same.

(ii) We know that $\frac{3}{6} > \frac{0}{6}$ as $3 > 0$ and the denominator is same.

(iii) We know that $\frac{1}{6} < \frac{6}{6}$ as $6 > 1$ and the denominator is same.

(iv) We know that $\frac{8}{6} > \frac{5}{6}$ as $8 > 5$ and the denominator is same.

3. Compare the following fractions and put an appropriate sign:

(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) We know that $\frac{3}{6} < \frac{5}{6}$ as $3 < 5$ and the denominator is same.

(ii) We know that $\frac{4}{5} > \frac{0}{5}$ as $4 > 0$ and the denominator is same.

(iii) We know that
 $\frac{3}{20} < \frac{4}{20}$ as $3 < 4$ and the denominator is same.

(iv) We know that
 $\frac{1}{7} < \frac{1}{4}$ as $7 > 4$ and if the numerator is same then the fraction having smaller denominator is larger.

4. Compare the following fractions using the symbol $>$ or $<$:

(i) $\frac{6}{7}$ and $\frac{6}{11}$

(ii) $\frac{3}{7}$ and $\frac{5}{7}$

(iii) $\frac{2}{3}$ and $\frac{8}{12}$

(iv) $\frac{1}{5}$ and $\frac{4}{15}$

(v) $\frac{8}{3}$ and $\frac{8}{13}$

(vi) $\frac{4}{9}$ and $\frac{15}{8}$

Solution:

(i) We know that
 $\frac{6}{7} > \frac{6}{11}$ as the fraction having smaller denominator is larger.

(ii) We know that
 $\frac{3}{7} < \frac{5}{7}$ as $3 < 5$ and the denominator is same.

(iii) We know that
 $\frac{8}{12} = \frac{(2 \times 2 \times 2)}{(2 \times 2 \times 3)} = \frac{2}{3}$
Hence, $\frac{2}{3} = \frac{8}{12}$

(iv) We know that
 $\frac{1}{5} = \frac{(1/5) \times (3/3)}{(3/3)} = \frac{3}{15}$ which is lesser than $\frac{4}{15}$
Hence, $\frac{1}{5} < \frac{4}{15}$

(v) We know that
 $\frac{8}{3} > \frac{8}{13}$ as the fraction having smaller value of denominator is larger.

(vi) We know that
 $\frac{4}{9} = \frac{(4/9) \times (8/8)}{(8/8)} = \frac{32}{72}$
 $\frac{15}{8} = \frac{(15/8) \times (9/9)}{(9/9)} = \frac{135}{72}$
So we get $\frac{32}{72} < \frac{135}{72}$
Hence, $\frac{4}{9} < \frac{15}{8}$.

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) $\frac{2}{12}$

(ii) $\frac{3}{15}$

(iii) $\frac{8}{50}$

(iv) $\frac{16}{100}$

(v) $\frac{10}{60}$

(vi) $\frac{15}{75}$

(vii) $\frac{12}{60}$

(viii) $\frac{16}{96}$

(ix) $\frac{12}{75}$

(x) $\frac{12}{72}$

(xi) $\frac{3}{18}$

(xii) $\frac{4}{25}$

Solution:

(i) $\frac{2}{12}$

We know that HCF of 2 and 12 = 2

By dividing numerator and denominator by HCF of 2 and 12

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

(ii) $\frac{3}{15}$

We know that HCF of 3 and 15 = 3

By dividing numerator and denominator by HCF of 3 and 15

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

(iii) $\frac{8}{50}$

We know that HCF of 8 and 50 = 2

By dividing numerator and denominator by HCF of 8 and 50

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

(iv) $\frac{16}{100}$

We know that HCF of 16 and 100 = 4

By dividing numerator and denominator by HCF of 16 and 100

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

(v) $\frac{10}{60}$

We know that HCF of 10 and 60 = 10

By dividing numerator and denominator by HCF of 10 and 60

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

(vi) $\frac{15}{75}$

We know that HCF of 15 and 75 = 15

By dividing numerator and denominator by HCF of 15 and 75

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

(vii) $\frac{12}{60}$

We know that HCF of 2 and 12 = 12

By dividing numerator and denominator by HCF of 2 and 12

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

(viii) $\frac{16}{96}$

We know that HCF of 16 and 96 = 16

By dividing numerator and denominator by HCF of 16 and 96

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

(ix) $\frac{12}{75}$

We know that HCF of 12 and 75 = 3

By dividing numerator and denominator by HCF of 12 and 75

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

(x) $\frac{12}{72}$

We know that HCF of 12 and 72 = 12

By dividing numerator and denominator by HCF of 12 and 72

$$12/72 \div 12/12 = 1/6$$

(xi) $3/18$

We know that HCF of 3 and 18 = 3

By dividing numerator and denominator by HCF of 3 and 18

$$3/18 \div 3/3 = 1/6$$

(xii) $4/25$

We know that HCF of 4 and 25 = 1

By dividing numerator and denominator by HCF of 4 and 25

$$4/25 \div 1/1 = 4/25$$

Three groups of equal fractions: $2/12, 10/60, 16/96, 12/72, 3/18, 3/15, 15/75, 12/60, 8/50, 16/100, 12/75, 4/25$

6. Isha read 25 pages of a book containing 100 pages. Nagma read $\frac{1}{2}$ of the same book. Who read less?

Solution:

No. of pages in the book = 100

We know that

Fraction of book Isha read = $(25/100) \div (25/25) = 1/4$ by dividing both numerator and denominator by HCF of 25 and 100

So the fraction of book Nagma read = $1/2$

By comparing $1/4$ and $1/2$ we get the LCM of 4 and 2 = 4

Now convert the fraction into equivalent fraction having denominator as 4

$$1/4 \times 1/1 \text{ and } 1/2 \times 2/2$$

$$1/4 < 1/2$$

Hence, Isha read less.

7. Arrange the following fractions in the ascending order:

(i) $2/9, 7/9, 3/9, 4/9, 1/9, 6/9, 5/9$

(ii) $7/8, 7/25, 7/11, 7/18, 7/10$

(iii) $37/47, 37/50, 37/100, 37/1000, 37/85, 37/41$

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

(v) $2/5, 3/4, 1/2, 3/5$

(vi) $3/8, 3/12, 3/6, 3/4$

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

Solution:

(i) $2/9, 7/9, 3/9, 4/9, 1/9, 6/9, 5/9$ can be written in ascending order as $1/9, 2/9, 3/9, 4/9, 5/9, 6/9, 7/9$

(ii) $7/8, 7/25, 7/11, 7/18, 7/10$ can be written in ascending order as $7/25, 7/18, 7/11, 7/10, 7/8$

(iii) $37/47, 37/50, 37/100, 37/1000, 37/85, 37/41$ can be written in ascending order as $37/1000, 37/100, 37/85, 37/50, 37/47, 37/41$

(iv) $\frac{3}{5}, \frac{1}{5}, \frac{4}{5}, \frac{2}{5}$ can be written in ascending order as
 $\frac{1}{5}, \frac{2}{5}, \frac{3}{5}, \frac{4}{5}$

(v) $\frac{2}{5}, \frac{3}{4}, \frac{1}{2}, \frac{3}{5}$ can be written in ascending order as
 $\frac{2}{5}, \frac{1}{2}, \frac{3}{5}, \frac{3}{4}$

(vi) $\frac{3}{8}, \frac{3}{12}, \frac{3}{6}, \frac{3}{4}$ can be written in ascending order as
 $\frac{3}{12}, \frac{3}{8}, \frac{3}{6}, \frac{3}{4}$

(vii) $\frac{4}{6}, \frac{3}{8}, \frac{6}{12}, \frac{5}{16}$ can be written in ascending order as
 $\frac{5}{16}, \frac{3}{8}, \frac{6}{12}, \frac{4}{6}$

8. Arrange in descending order in each of the following using the symbol $>$:

(i) $\frac{8}{17}, \frac{8}{9}, \frac{8}{5}, \frac{8}{13}$

(ii) $\frac{5}{9}, \frac{3}{12}, \frac{1}{3}, \frac{4}{15}$

(iii) $\frac{2}{7}, \frac{11}{35}, \frac{9}{14}, \frac{13}{28}$

Solutions:

(i) $\frac{8}{17}, \frac{8}{9}, \frac{8}{5}, \frac{8}{13}$ can be written in the descending order as
 $\frac{8}{5} > \frac{8}{9} > \frac{8}{13} > \frac{8}{17}$

(ii) $\frac{5}{9}, \frac{3}{12}, \frac{1}{3}, \frac{4}{15}$ can be written in the descending order as
 $\frac{5}{9} > \frac{1}{3} > \frac{4}{15} > \frac{3}{12}$

(iii) $\frac{2}{7}, \frac{11}{35}, \frac{9}{14}, \frac{13}{28}$ can be written in the descending order as
 $\frac{9}{14} > \frac{13}{28} > \frac{11}{35} > \frac{2}{7}$

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

(i) Is $\frac{5}{9}$ equal to $\frac{4}{5}$?

(ii) Is $\frac{9}{16}$ equal to $\frac{5}{9}$?

(iii) Is $\frac{4}{5}$ equal to $\frac{16}{20}$?

(iv) Is $\frac{1}{15}$ equal to $\frac{4}{30}$?

Solution:

(i) No. We know that $5 \times 5 \neq 9 \times 4$

(ii) No. We know that $9 \times 9 \neq 16 \times 5$

(iii) Yes. We know that $4 \times 20 = 16 \times 5$

(iv) No. We know that $1 \times 30 \neq 15 \times 4$