Question 1:
Write shaded portion as fraction. Arrange them in ascending and descending order using correct sign ‘<’, ‘>’, ‘=’ between the fractions:

(a) 

(b) 

(c) Show $\frac{2}{6}$, $\frac{4}{6}$ and $\frac{6}{6}$ on the number line. Put appropriate signs between the fractions given:

$\frac{5}{6}$, $\frac{3}{6}$, $\frac{1}{6}$, $\frac{8}{6}$

Answer 1:

(a) \[ \frac{3}{8}, \frac{6}{8}, \frac{4}{8}, \frac{1}{8} \]

Ascending order: \[ \frac{1}{8}, \frac{3}{8}, \frac{4}{8}, \frac{6}{8} \]

Descending order: \[ \frac{6}{8}, \frac{4}{8}, \frac{3}{8}, \frac{1}{8} \]

(b) \[ \frac{8}{9}, \frac{4}{9}, \frac{3}{9}, \frac{6}{9} \]

Ascending order: \[ \frac{3}{9}, \frac{4}{9}, \frac{6}{9}, \frac{8}{9} \]

Descending order: \[ \frac{8}{9}, \frac{6}{9}, \frac{4}{9}, \frac{3}{9} \]

(c) Number line

\[ \frac{5}{6} \geq \frac{2}{6} \geq \frac{1}{6} = \frac{0}{6} \geq \frac{3}{6} = \frac{8}{6} \geq \frac{5}{6} \]

Question 2:
Compare the fractions and put an appropriate sign:

(a) $\frac{3}{6} \leq \frac{5}{6}$

(b) $\frac{1}{7} \leq \frac{1}{4}$

(c) $\frac{4}{5} \leq \frac{5}{5}$

(d) $\frac{3}{5} \leq \frac{3}{7}$

Answer 2:

(a) $\frac{3}{6} \leq \frac{5}{6}$

(b) $\frac{1}{7} \leq \frac{1}{4}$

(c) $\frac{4}{5} \leq \frac{5}{5}$

(d) $\frac{3}{5} \leq \frac{3}{7}$
Question 3:
Make five more each pair and put appropriate signs.

Answer 3:
(a) $\frac{9}{10} > \frac{6}{10}$  
(b) $\frac{1}{3} < \frac{1}{6}$  
(c) $\frac{1}{8} < \frac{1}{5}$  
(d) $\frac{7}{8} < \frac{11}{8}$  
(e) $\frac{11}{13} > \frac{9}{13}$

Question 4:
Look at the figures and write ‘<’ or ‘>’ between the given pairs of fractions:

(a) $\frac{1}{6} > \frac{1}{3}$  
(b) $\frac{3}{4} > \frac{2}{6}$  
(c) $\frac{2}{3} > \frac{2}{4}$  
(d) $\frac{6}{3} > \frac{3}{3}$  
(e) $\frac{5}{6} < \frac{5}{5}$  

Make five more such problems and solve them with your friends.

Answer 4:
(a) $\frac{1}{6} < \frac{1}{3}$  
(b) $\frac{3}{4} > \frac{2}{6}$  
(c) $\frac{2}{3} > \frac{2}{4}$  
(d) $\frac{6}{3} > \frac{3}{3}$  
(e) $\frac{5}{6} < \frac{5}{5}$

Five more such problems:
(a) $\frac{1}{2} > \frac{3}{6}$  
(b) $\frac{2}{3} > \frac{3}{5}$  
(c) $\frac{3}{4} > \frac{4}{6}$  
(d) $\frac{5}{6} > \frac{2}{2}$  
(e) $\frac{0}{1} = \frac{0}{6}$

Solution:
(a) $\frac{1}{2} = \frac{3}{6}$  
(b) $\frac{2}{3} > \frac{3}{5}$  
(c) $\frac{3}{4} > \frac{4}{6}$  
(d) $\frac{5}{6} < \frac{2}{2}$  
(e) $\frac{0}{1} = \frac{0}{6}$
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**Question 5:**
How quickly can you do this? Fill appropriate sign (<, =, >):

(a) $\frac{1}{2}$ [ ] $\frac{1}{5}$
(b) $\frac{2}{4}$ [ ] $\frac{3}{6}$
(c) $\frac{3}{5}$ [ ] $\frac{2}{3}$
(d) $\frac{3}{4}$ [ ] $\frac{2}{8}$
(e) $\frac{3}{5}$ [ ] $\frac{6}{5}$
(f) $\frac{7}{9}$ [ ] $\frac{3}{9}$
(g) $\frac{1}{4}$ [ ] $\frac{2}{8}$
(h) $\frac{6}{10}$ [ ] $\frac{4}{5}$
(i) $\frac{3}{4}$ [ ] $\frac{7}{8}$
(j) $\frac{6}{10}$ [ ] $\frac{4}{5}$
(k) $\frac{5}{7}$ [ ] $\frac{15}{21}$

**Answer 5:**
(a) $\frac{1}{2}$ [ > ] $\frac{1}{5}$
(b) $\frac{2}{4}$ [ = ] $\frac{3}{6}$
(c) $\frac{3}{5}$ [ < ] $\frac{2}{3}$
(d) $\frac{3}{4}$ [ > ] $\frac{2}{8}$
(e) $\frac{3}{5}$ [ < ] $\frac{6}{5}$
(f) $\frac{7}{9}$ [ > ] $\frac{3}{9}$
(g) $\frac{1}{4}$ [ = ] $\frac{2}{8}$
(h) $\frac{6}{10}$ [ < ] $\frac{4}{5}$
(i) $\frac{3}{4}$ [ < ] $\frac{7}{8}$
(j) $\frac{6}{10}$ [ < ] $\frac{4}{5}$
(k) $\frac{5}{7}$ [ = ] $\frac{15}{21}$

**Question 6:**
The following fractions represent just three different numbers. Separate them into three groups of equivalent fractions, by changing each one to its simplest form:

(a) $\frac{2}{12}$
(b) $\frac{3}{15}$
(c) $\frac{8}{50}$
(d) $\frac{16}{100}$
(e) $\frac{10}{60}$
(f) $\frac{15}{75}$
(g) $\frac{12}{60}$
(h) $\frac{16}{96}$
(i) $\frac{12}{75}$
(j) $\frac{12}{72}$
(k) $\frac{3}{18}$
(l) $\frac{4}{25}$

**Answer 6:**
(a) $\frac{2}{12} = \frac{1}{6}$
(b) $\frac{3}{15} = \frac{1}{5}$
(c) $\frac{8}{50} = \frac{4}{25}$
(d) $\frac{16}{100} = \frac{4}{25}$
(e) $\frac{10}{60} = \frac{1}{6}$
(f) $\frac{16}{96} = \frac{1}{6}$
(g) $\frac{12}{75} = \frac{1}{6}$
(h) $\frac{12}{72} = \frac{1}{6}$
(i) $\frac{3}{18} = \frac{1}{6}$
(j) $\frac{4}{25}$
(k) $\frac{4}{25}$

Equivalent groups:

I group: $\frac{1}{6}$
[(b), (f), (g)]

II group: $\frac{1}{6}$
[(a), (e), (h), (j), (k)]

III group: $\frac{4}{25}$
[(c), (d), (i), (l)]
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**Question 7:**
Find answers to the following. Write and indicate how you solved them:

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

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

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

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

**Answer 7:**

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

$\Rightarrow \frac{5 \times 5}{9 \times 5} = \frac{25}{45}$ and $\frac{4 \times 9}{5 \times 9} = \frac{36}{45}$

$\therefore \text{L.C.M. of 9 and 5 is 45}$

Since, $\frac{25}{45} \neq \frac{36}{45}$

Therefore, $\frac{5}{9} \neq \frac{4}{5}$

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

$\Rightarrow \frac{9 \times 9}{16 \times 9} = \frac{81}{144}$ and $\frac{5 \times 16}{9 \times 16} = \frac{80}{144}$

$\therefore \text{L.C.M. of 16 and 9 is 144}$

Since, $\frac{81}{144} \neq \frac{80}{144}$

Therefore, $\frac{9}{16} \neq \frac{5}{9}$

(c) $\frac{4}{5}$ and $\frac{16}{20}$

$\Rightarrow \frac{4 \times 20}{5 \times 20} = \frac{80}{100}$ and $\frac{16 \times 5}{20 \times 5} = \frac{80}{100}$

$\therefore \text{L.C.M. of 5 and 20 is 100}$

Since, $\frac{80}{100} = \frac{80}{100}$

Therefore, $\frac{4}{5} = \frac{16}{20}$

(d) $\frac{1}{15}$ and $\frac{4}{30}$

$\Rightarrow \frac{1 \times 2}{15 \times 2} = \frac{2}{30}$ and $\frac{4 \times 1}{30 \times 1} = \frac{4}{30}$

$\therefore \text{L.C.M. of 15 and 30 is 30}$

Since, $\frac{4}{30} = \frac{4}{30}$

Therefore, $\frac{1}{15} = \frac{4}{30}$
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Question 8:
Ila read 25 pages of a book containing 100 pages. Lalita read \( \frac{2}{5} \) of the same book. Who read less?

Answer 8:
Ila read 25 pages out of 100 pages.

Fraction of reading the pages = \( \frac{25}{100} = \frac{1}{4} \) th part of book

Lalita read \( \frac{2}{5} \) th part of book = \( \frac{40}{100} \) pages

Since \( \frac{1}{4} < \frac{2}{5} \)

Therefore, Ila read less.

Question 9:
Rafiq exercised for \( \frac{3}{6} \) of an hour, while Rohit exercised for \( \frac{3}{4} \) of an hour. Who exercised for a longer time?

Answer 9:
Rafiq exercised \( \frac{3}{6} \) of an hour.

Rohit exercised \( \frac{3}{4} \) of an hour.

Since \( \frac{3}{4} > \frac{3}{6} \)

Therefore, Rohit exercised for a longer time.

Question 10:
In a class A of 25 students, 20 passed in first class; in another class B of 30 students, 24 passed in first class. In which class was a greater fraction of students getting first class?

Answer 10:
In class A, 20 passed out of 25, i.e., \( \frac{20}{25} = \frac{4}{5} \)

In class B, 24 passed out of 30, i.e., \( \frac{24}{30} = \frac{4}{5} \)

Hence, each class have same fraction of student getting first class.