



Exercise 1A

Q7

Thus,

$$\frac{-3}{7} > \frac{6}{-13}$$

(ii) We will write each of the given numbers with positive denominators.

$$\text{One number} = \frac{5}{-13} = \frac{5 \times (-1)}{-13 \times (-1)} = \frac{-5}{13}$$

$$\text{Other number} = \frac{-35}{91}$$

LCM of 13 and 91 = 91

$$\therefore \frac{-5}{13} = \frac{-5 \times 7}{13 \times 7} = \frac{-35}{91} \text{ and } \frac{-35}{91}$$

Clearly,

$$-35 = -35$$

$$\therefore \frac{-35}{91} = \frac{-35}{91}$$

Thus,

$$\frac{-5}{13} = \frac{-35}{91}$$

(iii) We will write each of the given numbers with positive denominators.

$$\text{One number} = -2$$

We can write -2 as $\frac{-2}{1}$.

$$\text{Other number} = \frac{-13}{5}$$

LCM of 1 and 5 = 5

$$\therefore \frac{-2}{1} = \frac{-2 \times 5}{1 \times 5} = \frac{-10}{5} \text{ and } \frac{-13}{5} = \frac{-13 \times 1}{5 \times 1} = \frac{-13}{5}$$

Clearly,

$$-10 > -13$$

$$\therefore \frac{-10}{5} > \frac{-13}{5}$$

Thus,

$$\frac{-2}{1} > \frac{-13}{5}$$

$$-2 > \frac{-13}{5}$$

(iv) We will write each of the given numbers with positive denominators.

$$\text{One number} = \frac{-2}{3}$$

$$\text{Other number} = \frac{5}{-8} = \frac{5 \times (-1)}{-8 \times (-1)} = \frac{-5}{8}$$

LCM of 3 and 8 = 24

$$\therefore \frac{-2}{3} = \frac{-2 \times 8}{3 \times 8} = \frac{-16}{24} \text{ and } \frac{-5}{8} = \frac{-5 \times 3}{8 \times 3} = \frac{-15}{24}$$

Clearly,

$$-16 < -15$$

$$\therefore \frac{-16}{24} < \frac{-15}{24}$$

Thus,

$$\frac{-2}{3} < \frac{-5}{8}$$

$$\frac{-2}{3} < \frac{5}{-8}$$

$$(v) \frac{-3}{-5} = \frac{-3 \times -1}{-5 \times -1} = \frac{3}{5}$$

$\frac{3}{5}$ is a positive number.

Because every positive rational number is greater than 0, $\frac{3}{5} > 0 \Rightarrow 0 < \frac{3}{5}$.

(vi) We will write each of the given numbers with positive denominators.

$$\text{One number} = \frac{-8}{9}$$

$$\text{Other number} = \frac{-9}{10}$$

LCM of 9 and 10 = 90

$$\therefore \frac{-8}{9} = \frac{-8 \times 10}{9 \times 10} = \frac{-80}{90} \text{ and } \frac{-9}{10} = \frac{-9 \times 9}{10 \times 9} = \frac{-81}{90}$$

Clearly,

$$-81 < -80$$

$$\therefore \frac{-81}{90} < \frac{-80}{90}$$

Thus,

$$\frac{-9}{10} < \frac{-8}{9}$$

Answer :

(i) We will write each of the given numbers with positive denominators.

We have:

$$\frac{4}{-9} = \frac{4 \times (-1)}{-9 \times (-1)} = \frac{-4}{9} \text{ and } \frac{7}{-18} = \frac{7 \times (-1)}{-18 \times (-1)} = \frac{-7}{18}$$

Thus, the given numbers are $\frac{-4}{9}$, $\frac{-5}{12}$, $\frac{-7}{18}$ and $\frac{-2}{3}$.

LCM of 9, 12, 18 and 3 is 36.

Now,

$$\frac{-4}{9} = \frac{-4 \times 4}{9 \times 4} = \frac{-16}{36}$$

$$\frac{-5}{12} = \frac{-5 \times 3}{12 \times 3} = \frac{-15}{36}$$

$$\frac{-7}{18} = \frac{-7 \times 2}{18 \times 2} = \frac{-14}{36}$$

$$\frac{-2}{3} = \frac{-2 \times 12}{3 \times 12} = \frac{-24}{36}$$

Clearly,

$$\frac{-24}{36} < \frac{-16}{36} < \frac{-15}{36} < \frac{-14}{36}$$

$$\therefore \frac{-2}{3} < \frac{-4}{9} < \frac{-5}{12} < \frac{-7}{18}$$

That is

$$\frac{-2}{3} < \frac{4}{-9} < \frac{-5}{12} < \frac{7}{-18}$$

(ii) We will write each of the given numbers with positive denominators.

We have:

$$\frac{5}{-12} = \frac{5 \times (-1)}{-12 \times (-1)} = \frac{-5}{12} \text{ and } \frac{9}{-24} = \frac{9 \times (-1)}{-24 \times (-1)} = \frac{-9}{24}$$

Thus, the given numbers are $\frac{-3}{4}$, $\frac{-5}{12}$, $\frac{-7}{16}$ and $\frac{-9}{24}$.

LCM of 4, 12, 16 and 24 is 48.

Now,

$$\frac{-3}{4} = \frac{-3 \times 12}{4 \times 12} = \frac{-36}{48}$$

$$\frac{-5}{12} = \frac{-5 \times 4}{12 \times 4} = \frac{-20}{48}$$

$$\frac{-7}{16} = \frac{-7 \times 3}{16 \times 3} = \frac{-21}{48}$$

$$\frac{-9}{24} = \frac{-9 \times 2}{24 \times 2} = \frac{-18}{48}$$

Clearly,

$$\frac{-36}{48} < \frac{-21}{48} < \frac{-20}{48} < \frac{-18}{48}$$

$$\therefore \frac{-3}{4} < \frac{-7}{16} < \frac{-5}{12} < \frac{-9}{24}$$

That is

$$\frac{-3}{4} < \frac{-7}{16} < \frac{-5}{12} < \frac{-9}{24}$$

(iii) We will write each of the given numbers with positive denominators.

We have:

$$\frac{3}{-5} = \frac{3 \times (-1)}{-5 \times (-1)} = \frac{-3}{5}$$

Thus, the given numbers are $\frac{-3}{5}$, $\frac{-7}{10}$, $\frac{-11}{15}$ and $\frac{-13}{20}$.

LCM of 5, 10, 15 and 20 is 60.

Now,

$$\frac{-3}{5} = \frac{-3 \times 12}{5 \times 12} = \frac{-36}{60}$$

$$\frac{-7}{10} = \frac{-7 \times 6}{10 \times 6} = \frac{-42}{60}$$

$$\frac{-11}{15} = \frac{-11 \times 4}{15 \times 4} = \frac{-44}{60}$$

$$\frac{-13}{20} = \frac{-13 \times 3}{20 \times 3} = \frac{-39}{60}$$

Clearly,

$$\frac{-44}{60} < \frac{-42}{60} < \frac{-39}{60} < \frac{-36}{60}$$

$$\therefore \frac{-11}{15} < \frac{-7}{10} < \frac{-13}{20} < \frac{-3}{5}.$$

That is

$$\frac{-11}{15} < \frac{-7}{10} < \frac{-13}{20} < \frac{-3}{5}$$

(iv) We will write each of the given numbers with positive denominators.

We have:

$$\frac{13}{-28} = \frac{13 \times (-1)}{-28 \times (-1)} = \frac{-13}{28}$$

Thus, the given numbers are $\frac{-4}{7}$, $\frac{-9}{14}$, $\frac{-13}{28}$ and $\frac{-23}{42}$.

LCM of 7, 14, 28 and 42 is 84.

Now,

$$\frac{-4}{7} = \frac{-4 \times 12}{7 \times 12} = \frac{-48}{84}$$

$$\frac{-9}{14} = \frac{-9 \times 6}{14 \times 6} = \frac{-54}{84}$$

$$\frac{-13}{28} = \frac{-13 \times 3}{28 \times 3} = \frac{-39}{84}$$

$$\frac{-23}{42} = \frac{-23 \times 2}{42 \times 2} = \frac{-46}{84}$$

Clearly,

$$\frac{-54}{84} < \frac{-48}{84} < \frac{-46}{84} < \frac{-39}{84}$$

$$\therefore \frac{-9}{14} < \frac{-4}{7} < \frac{-23}{42} < \frac{-13}{28}.$$

That is

$$\frac{-9}{14} < \frac{-4}{7} < \frac{-23}{42} < \frac{-13}{28}$$

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