



Exercise 1A

Q5

We know:

- (i) Every positive rational number is greater than 0.
- (ii) Every negative rational number is less than 0.

Thus, we have:

- (i) $\frac{3}{8}$ is a positive rational number.

$$\therefore \frac{3}{8} > 0$$

- (ii) $\frac{-2}{9}$ is a negative rational number.

$$\therefore \frac{-2}{9} < 0$$

- (iii) $\frac{-3}{4}$ is a negative rational number.

$$\therefore \frac{-3}{4} < 0$$

Also,

$\frac{1}{4}$ is a positive rational number.

$$\therefore \frac{1}{4} > 0$$

Combining the two inequalities, we get:

$$\frac{-3}{4} < \frac{1}{4}$$

- (iv) Both $\frac{-5}{7}$ and $\frac{-4}{7}$ have the same denominator, that is, 7.

So, we can directly compare the numerators.

$$\therefore \frac{-5}{7} < \frac{-4}{7}$$

- (v) The two rational numbers are $\frac{2}{3}$ and $\frac{3}{4}$.

The LCM of the denominators 3 and 4 is 12.

Now,

$$\frac{2}{3} = \frac{2 \times 4}{3 \times 4} = \frac{8}{12}$$

Also,

$$\frac{3}{4} = \frac{3 \times 3}{4 \times 3} = \frac{9}{12}$$

Further

$$\frac{8}{12} < \frac{9}{12}$$

$$\therefore \frac{2}{3} < \frac{3}{4}$$

(vi) The two rational numbers are $\frac{-1}{2}$ and -1 .

We can write $-1 = \frac{-1}{1}$.

The LCM of the denominators 2 and 1 is 2.

Now,

$$\frac{-1}{2} = \frac{-1 \times 1}{2 \times 1} = \frac{-1}{2}$$

Also,

$$\frac{-1}{1} = \frac{-1 \times 2}{1 \times 2} = \frac{-2}{2}$$

$$\therefore \frac{-2}{2} < \frac{-1}{2}$$

$$\therefore -1 < \frac{-1}{2}$$

Q6

Answer :

1. The two rational numbers are $\frac{-4}{3}$ and $\frac{-8}{7}$.

The LCM of the denominators 3 and 7 is 21.

Now,

$$\frac{-4}{3} = \frac{-4 \times 7}{3 \times 7} = \frac{-28}{21}$$

Also,

$$\frac{-8}{7} = \frac{-8 \times 3}{7 \times 3} = \frac{-24}{21}$$

Further,

$$\frac{-28}{21} < \frac{-24}{21}$$

$$\therefore \frac{-4}{3} < \frac{-8}{7}$$

2. The two rational numbers are $\frac{7}{-9}$ and $\frac{-5}{8}$.

The first fraction can be expressed as $\frac{7}{-9} = \frac{7 \times -1}{-9 \times -1} = \frac{-7}{9}$.

The LCM of the denominators 9 and 8 is 72.

Now,

$$\frac{-7}{9} = \frac{-7 \times 8}{9 \times 8} = \frac{-56}{72}$$

Also,

$$\frac{-5}{8} = \frac{-5 \times 9}{8 \times 9} = \frac{-45}{72}$$

Further,

$$\frac{-56}{72} < \frac{-45}{72}$$

$$\therefore \frac{7}{-9} < \frac{-5}{8}$$

3. The two rational numbers are $\frac{-1}{3}$ and $\frac{4}{-5}$.

$$\frac{4}{-5} = \frac{4 \times -1}{-5 \times -1} = \frac{-4}{5}$$

The LCM of the denominators 3 and 5 is 15.

Now,

$$\frac{-1}{3} = \frac{-1 \times 5}{3 \times 5} = \frac{-5}{15}$$

Also,

$$\frac{-4}{5} = \frac{-4 \times 3}{5 \times 3} = \frac{-12}{15}$$

Further,

$$\frac{-12}{15} < \frac{-5}{15}$$

$$\therefore \frac{4}{-5} < \frac{-1}{3}$$

4. The two rational numbers are $\frac{9}{-13}$ and $\frac{7}{-12}$.

$$\text{Now, } \frac{9}{-13} = \frac{9 \times -1}{-13 \times -1} = \frac{-9}{13} \text{ and } \frac{7}{-12} = \frac{7 \times -1}{-12 \times -1} = \frac{-7}{12}$$

The LCM of the denominators 13 and 12 is 156.

Now,

$$\frac{-9}{13} = \frac{-9 \times 12}{13 \times 12} = \frac{-108}{156}$$

Also,

$$\frac{-7}{12} = \frac{-7 \times 13}{12 \times 13} = \frac{-91}{156}$$

Further,

$$\frac{-108}{156} < \frac{-91}{156}$$

$$\therefore \frac{9}{-13} < \frac{7}{-12}$$

5. The two rational numbers are $\frac{4}{-5}$ and $\frac{-7}{10}$.

$$\therefore \frac{4}{-5} = \frac{4 \times -1}{-5 \times -1} = \frac{-4}{5}$$

The LCM of the denominators 5 and 10 is 10.

Now,

$$\frac{-4}{5} = \frac{-4 \times 2}{5 \times 2} = \frac{-8}{10}$$

Also,

$$\frac{-7}{10} = \frac{-7 \times 1}{10 \times 1} = \frac{-7}{10}$$

Further,

$$\frac{-8}{10} < \frac{-7}{10}$$

$$\therefore \frac{-4}{5} < \frac{-7}{10}, \text{ or, } \frac{4}{-5} < \frac{-7}{10}$$

6. The two rational numbers are $\frac{-12}{5}$ and -3 .
 -3 can be written as $\frac{-3}{1}$.

The LCM of the denominators is 5.

Now,

$$\frac{-3}{1} = \frac{-3 \times 5}{1 \times 5} = \frac{-15}{5}$$

Because $\frac{-15}{5} < \frac{-12}{5}$, we can conclude that $-3 < \frac{-12}{5}$.

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