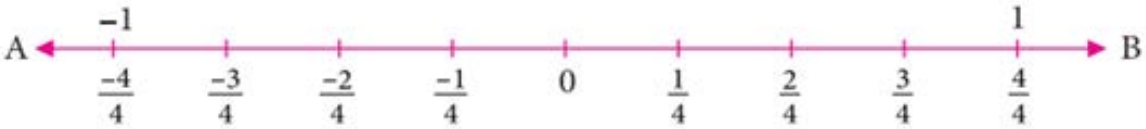
Comparison of Rational Numbers

Let us consider a number line representing rational numbers as shown in the figure.



From the figure,

$\frac{-4}{4} < \frac{-3}{4} < \frac{-2}{4} < \frac{-1}{4} < 0 < \frac{1}{4} < \frac{2}{4} < \frac{3}{4} < \frac{4}{4}$ **(Ascending Order)**

$\frac{4}{4} > \frac{3}{4} > \frac{2}{4} > \frac{1}{4} > 0 > \frac{-1}{4} > \frac{-2}{4} > \frac{-3}{4} > \frac{-4}{4}$ **(Descending Order)**

The above rational numbers have the same denominator. SO, by comparing the numerators we can find out which is greater or which is smaller.

Let us understand with some examples:

Example: Which is smaller, $\frac{13}{23}$ or $\frac{8}{23}$?

Solution: Since both $\frac{13}{23}$ and $\frac{8}{23}$ and have the same denominator, we compare their numerators.

Here, 8 < 13

So, $\frac{13}{23} > \frac{8}{23}$

Example: Of the two rational numbers which is greater 2/3 or 5/7?

Solution:

Given Rational Numbers are 2/3, 5/7

LCM of 3, 7 is 21

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⇨ Expressing the rational numbers with the same denominator using the LCM obtained we get

Therefore, we get 2/3 = (2*7)/ (3*7) = 14/21

5/7 = (5*3)/ (7*3) = 15/21

See the numerators of both the rational numbers obtained i.e., 14/21, 15/21

Since 15 is greater the rational number 5/7 is greater.