RATIONAL NUMBERS

ORDER OF RATIONAL NUMBER

Order of Rational Number:

Procedure to arrange from Smallest to Largest Rational Numbers

Go through the below-listed guidelines in order to arrange Rational Numbers from smallest to largest. They are along the lines

Step 1: Express the given rational number in terms of a positive denominator.

Step 2: Determine the Least Common Multiple of the positive denominators obtained.

Step 3: Express each rational number with the LCM acquired as the common denominator.

Step 4: The number which has the smaller numerator is the smaller rational number.

Examples for Rational Numbers in Ascending Order

Ex.1. Write the following rational numbers in Ascending Order $\frac{-3}{5}, \frac{-1}{5}, \frac{-2}{5}$-

Sol. Since all the numbers have a common denominator the one with a smaller numerator is the smaller rational number. However, when it comes to negative numbers the higher one is the smaller one.

Therefore arranging the given rational numbers we get $\frac{-3}{5}, \frac{-1}{5}, \frac{-2}{5}$-

Ex.2 Arrange the rational numbers $\frac{1}{2}, \frac{-2}{9}, \frac{-4}{3}$ in Ascending Order?

Sol. Find the LCM of the denominators 2, 9, 3

LCM of 2, 9, 3 is 18

Express the given rational numbers with the LCM in terms of common denominator.

$$\frac{1}{2} = \frac{1 * 9}{2 * 9} = \frac{9}{18}$$

$$\frac{-2}{9} = \frac{-2 * 2}{9 * 2} = \frac{-4}{18}$$

$$\frac{-4}{3} = \frac{-4 * 6}{3 * 6} = \frac{-24}{18}$$

Check the numerators of all the rational numbers expressed with a common denominator.

Since -24 is less than the other two we can arrange the given rational numbers in Ascending Order.

$\frac{-4}{3}, \frac{-2}{9}, \frac{1}{2}$ is the Ascending Order of Given Rational Numbers.

Ex.3 Arrange the Rational Numbers $\frac{5}{8}, \frac{4}{-6}, \frac{3}{5}$ in Ascending Order?

Sol. Firstly, express the rational numbers with positive denominators by multiplying with -1

$$\frac{4}{-6} = \frac{4 * (-1)}{-6 * (-1)} = \frac{-4}{6}$$

So, find the LCM of the denominators 8, 6, 5

LCM of 8, 6, 5 is 120

$$\frac{5}{8} = \frac{5 * 15}{8 * 15} = \frac{75}{120}$$

$$\frac{-4}{6} = \frac{-4 * 20}{6 * 20} = \frac{-80}{120}$$

$$\frac{3}{5} = \frac{3 * 24}{5 * 24} = \frac{72}{120}$$

Check the numerator of the rational numbers having common denominators.

since -80 is the smallest that itself is the smallest rational number.

Therefore, $\frac{4}{-6}, \frac{3}{5}, \frac{5}{8}$ are in Ascending Order.

Rational Numbers in Descending Order

Learn how to arrange Rational Numbers in Descending Order or Decreasing Order. In order to make you familiar with the concept of Rational Numbers in Decreasing Order we even listed examples explaining the step by step process. Check out the general method to arrange rational numbers from Largest to Smallest easily.

Procedure to arrange Rational Numbers from Largest to Smallest

Follow the easy guidelines on how to arrange Rational Numbers in Decreasing Order. They are as follows

Step 1: Express the given rational number in terms of the positive denominator.

Step 2: Find out the Least Common Denominator of the Positive Denominators.

Step 3: Express the given rational numbers using the LCM as Common Denominator.

Step 4: Compare the numerators and the one having the highest numerator is the largest one.

Examples on Rational Numbers in Decreasing Order

Ex.4 Arrange the numbers $\frac{5}{-3}, \frac{10}{-7}, \frac{-5}{8}$ in Descending Order?

Sol. Given Rational Numbers are $\frac{5}{-3}, \frac{10}{-7}, \frac{-5}{8}$

Express the Rational Numbers with Positive Denominators

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

$$\frac{10}{-7} = \frac{10 * (-1)}{-7 * (-1)} = \frac{-10}{7}$$

$\frac{-5}{8}$ already has a positive denominator

Find the LCM of Positive Denominators

LCM of 3, 7, 8 is 168

Express the Rational Numbers with Common Denominator with the LCM obtained.

$$\frac{-5}{3} = \frac{-5 * 56}{3 * 56} = \frac{-280}{168}$$

$$\frac{-10}{7} = \frac{-10 * 24}{7 * 24} = \frac{-240}{168}$$

$$\frac{-5}{8} = \frac{-5 * 21}{8 * 21} = \frac{-105}{168}$$

Check the numerators of the rational numbers. Since all of them are negative numbers the lesser one is the highest fraction.

Therefore, Rational Numbers in Descending Order are $\frac{5}{-3}, \frac{10}{-7}, \frac{-5}{8}$

Ex.5 Arrange the Rational Numbers $\frac{4}{9}, \frac{5}{6}, \frac{7}{12}$ in Descending Order?

Sol. Given Rational Numbers are $\frac{4}{9}, \frac{5}{6}, \frac{7}{12}$

Find the LCM of the Positive Denominators

LCM of 9, 6, 12 is 36

Express the Rational Numbers in terms of Common Denominator using the LCM obtained earlier.

$$\frac{4}{9} = \frac{4*4}{9*4} = \frac{16}{36}$$
$$\frac{5}{6} = \frac{5*6}{6*6} = \frac{30}{36}$$
$$\frac{7}{12} = \frac{7*3}{12*3} = \frac{21}{36}$$

Check the numerators of the rational numbers and the one having highest numerator is the highest rational number.

$\frac{5}{6}, \frac{7}{12}, \frac{4}{9}$ is the Descending Order of Rational Numbers.

Ex.6 Arrange the Rational Numbers $\frac{3}{8}, \frac{5}{7}, \frac{2}{9}$ in Descending Order?

Sol. Given Rational Numbers are $\frac{3}{8}, \frac{5}{7}, \frac{2}{9}$

Determine the LCM of Positive Denominators.

LCM of 8, 7, 9 is 504.

Express the rational numbers with common denominator using the LCM obtained.

$$\frac{3}{8} = \frac{3*63}{8*63} = \frac{189}{504}$$
$$\frac{5}{7} = \frac{5*72}{7*72} = \frac{360}{504}$$
$$\frac{2}{9} = \frac{2*56}{9*56} = \frac{112}{504}$$

Check the numerators of the rational numbers and arrange the ones from highest to lowest.

Therefore Rational Numbers arranged in Descending Order is $\frac{5}{7}, \frac{3}{8}, \frac{2}{9}$

Ex.7 Arrange the following fractions in ascending order. $\frac{3}{8}, \frac{4}{12}, \frac{-7}{16}, \frac{-2}{3}$.

Sol. LCM of denominators

8, 12, 16, and 3 = 2 × 2 × 2 × 2 × 3 = 48.

Then $\frac{3}{8} = \frac{3\times6}{8\times6} = \frac{18}{48}$;

$\frac{-7}{16} = \frac{-7\times3}{16\times3} = \frac{-21}{48}$;

$\frac{4}{12} = \frac{4\times4}{12\times4} = \frac{16}{48}$;

$-\frac{2}{3} = \frac{-2\times16}{3\times16} = \frac{-32}{48}$

2	8, 12, 16, 3
2	4, 6, 8, 3
2	2, 3, 4, 3
2	1, 3, 2, 3
3	1, 3, 1, 3
	1, 1, 1, 1

The equivalent rational numbers are

$\frac{18}{48}, \frac{16}{48}, \frac{-21}{48}$ and $\frac{-32}{48}$

Therefore, the smallest rational number is $\frac{-32}{48}$, then comes, $\frac{-21}{48}$, then comes $\frac{16}{48}$, and the greatest rational number is $\frac{18}{48}$. Hence, their ascending order is $\frac{-2}{3}$, $\frac{-7}{16}$, $\frac{4}{12}$, $\frac{3}{8}$.