

MATHS

Date: 03-04-2020

Class-VIII

RATIONAL NUMBERS

Rational numbers: If the fraction is in the form of $\frac{p}{q}$, where p and q are integers and $q \neq 0$.

Example: $\frac{2}{3}$, $-\frac{2}{3}$, $\frac{-4}{3}$ etc are rational numbers.

1. Zero is a rational number.

2. Two types of rational numbers are there (positive and negative)

i) every positive rational number is greater than zero.

ii) every negative rational number is less than zero.

3. Every natural, integer and fractional numbers are also rational numbers.

Equivalent Rational numbers :

If $\frac{p}{q}$ is a rational number and m is a non-zero integer, then

$$\frac{p}{q} = \frac{p \times m}{q \times m}$$

Rational number $\frac{p \times m}{q \times m}$ is a rational number equivalent to $\frac{p}{q}$.

\therefore Two rational numbers $\frac{a}{b}$ and $\frac{c}{d}$ are equivalent if $ad = bc$.

For example: $\frac{-7}{21} = \frac{3}{-9}$ and $\frac{5}{7} = \frac{20}{28}$

Q.Find two rational numbers of : $\frac{2}{3}, \frac{-4}{7}$.

Standard form: A rational number $\frac{p}{q}$, is said to be in the lowest form or standard form ,if p and q have no common divisor other than 1.

Example : Express $\frac{33}{-44}$ in standard form.

$$\text{Solution : } \frac{33}{-44} = \frac{33 \times (-1)}{-44 \times (-1)} = \frac{-33}{44}$$

The greatest common divisor of 33 and 44 is 11.

$$\therefore -\frac{33}{44} = \frac{-33 \div 11}{44 \div 11} = \frac{-3}{4} \quad (\text{standard form})$$

Answer the following questions:(WORK SHEET-1)

Q: 1. Express each of the following numbers in standard form:

$$\frac{21}{35}, \frac{-32}{40}, \frac{-36}{45}, \frac{247}{228},$$

Q: 2. Express $\frac{-3}{5}$ as a rational number with denominator

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Q:3. Express $\frac{-48}{60}$ as a rational number with denominator 5.

Q:4.Arrange the following rational numbers in ascending order:

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

Q: 5. .Arrange the following rational numbers in descending order:

$$\frac{-3}{10}, \frac{7}{-15}, \frac{-11}{20}, \frac{17}{-30}$$