ODM EDUCATIONAL GROUP
Changing your Tomorrow

RATIONAL NUMBERS

PERIOD 9

SUBJECT : MATHEMATICS
CHAPTER NUMBER: 1
CHAPTER NAME : RATIONAL NUMBERS

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Learning outcome

- Students will be able to understand that the decimal representation of a rational number is either **terminating or repeating**
- Students will be able to understand the difference between **rounding a decimal and truncating it.**
- Students will be able to understand addition of rational numbers.
- Students will be able to understand and apply properties of addition
- Students will be able to understand and apply properties of subtraction.
- Students will be able to understand and apply properties of subtraction.
- Students will be able to understand and apply properties of division.
- Students will be able to represent rational numbers on the number line.

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- **Give one example each to show that the rational numbers are closed under addition, subtraction and multiplication. Are rational numbers closed under division? Give two examples in support of your answer.**

Sol: We know that, rational numbers are closed under addition, subtraction and multiplication. We can understand this from the following examples.

Rational numbers are closed under addition

But rational are not closed under division. If zero is excluded from the collection of rational numbers, then we can say that rational numbers are closed under division.

e.g. $\frac{4}{7} + \frac{1}{2} = \frac{8+7}{14} = \frac{15}{14}$, which is a rational number.

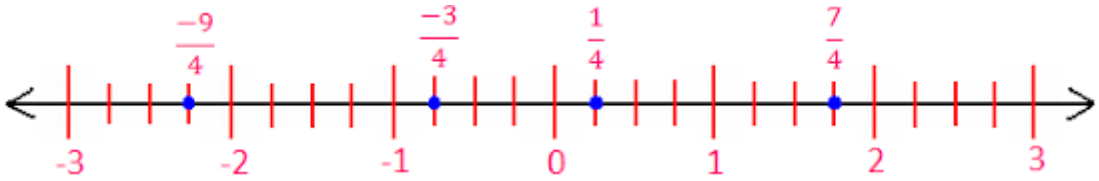
Subtraction

e.g. $\frac{4}{7} - \frac{1}{2} = \frac{8-7}{14} = \frac{1}{14}$, which is a rational number.

Multiplication

e.g. $\frac{4}{7} \times \frac{1}{2} = \frac{4}{14} = \frac{2}{7}$, which is a rational number.

Representation 7/4 on number line



Write 3 rational numbers between 2/3 and ¾

Solution: Required number $= \frac{1}{2}\left(\frac{2}{3}+\frac{3}{4}\right)$

$$= \frac{1}{2}\left(\frac{8+9}{12}\right) = \frac{1}{2}\times\frac{17}{12} = \frac{17}{24}$$

Rational number between $\frac{2}{3}$ and $\frac{17}{24} = \frac{1}{2}\left(\frac{2}{3}+\frac{17}{24}\right)$

$$= \frac{1}{2}\left(\frac{16+17}{24}\right) = \frac{1}{2}\times\frac{33}{24} = \frac{33}{48}$$

Rational number between $\frac{17}{24}$ and $\frac{3}{4} = \frac{1}{2}\left(\frac{17}{24}+\frac{3}{4}\right)$

$$= \frac{1}{2}\left(\frac{17+18}{24}\right) = \frac{1}{2}\times\frac{35}{24} = \frac{35}{48}$$

Therefore, the three rational numbers are $\frac{17}{24}, \frac{33}{48}, \frac{35}{48}$.

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Q.The product of two rational numbers is -2. If one of them is 4/7, find the other.

Q. The product of two numbers is −49. If one of them is −22/7, find the other

Q. By what number must −3/4 be multiplied so that the product is −9/16 ?

Home Assignment

Exercise 1(E)

THANKING YOU

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