19.4.21 Chapter - 1 SUBJECT - MATH

Rational Numbers (C.W)

Properties of Rational Numbers

① Closure Property

If a and b are rational numbers then (a+b), (a-b), and (a×b) are also rational numbers. So rational numbers are closed under addition, subtraction and multiplication.

If $b \neq 0$, then $(a \div b)$ is also a rational number.

Examples:-

$\frac{3}{4}, \frac{-2}{5}$

$\frac{3}{4} + \left(\frac{-2}{5}\right)$

$= \frac{15 + (-8)}{20}$

$= \frac{7}{20}$

$\frac{3}{4} - \left(\frac{-2}{5}\right)$

$= \frac{15 - (-8)}{20}$

$= \frac{23}{20}$

$\frac{3}{4} \times \left(\frac{-2}{5}\right)$

$= \frac{-3}{10}$

$\frac{3}{4} \div \left(\frac{-2}{5}\right)$

$= \frac{3}{4} \times \frac{5}{(-2)}$

$= \frac{15}{-8}$

$= \frac{-15}{8}$

$\frac{1}{2} \div 0$

$= \frac{1}{2} \times \frac{1}{0} = \boxed{\frac{1}{0}}$ = Not defined

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Commutativity

$\frac{-3}{8}, \left(\frac{-1}{4}\right)$

Addition

$\frac{-3}{8} + \left(\frac{-1}{4}\right)$

$= \frac{-3-2}{8}$

$= \frac{-5}{8}$ ✓

$\left(\frac{-1}{4}\right) + \left(\frac{-3}{8}\right)$

$= \frac{-2-3}{8}$

$= \frac{-5}{8}$ ✓

Subtraction

$\left(\frac{-3}{8}\right) - \left(\frac{-1}{4}\right)$

$= \frac{-3+2}{8}$

$= \frac{-1}{8}$

$\left(\frac{-1}{4}\right) - \left(\frac{-2}{8}\right)$

$= \frac{-2+2}{8}$

$= \frac{0}{8}$

H.W (To be done in H.W. Notebook of math)

Page -4 - Try These (Complete the table)

Page -6 - Try These (Complete the table)