

Study Material

class - VII

Sub - Maths

Chapter 4 : Rational Number

Rational numbers : The numbers which are written in $\frac{p}{q}$ form, where p and q are integers and $q \neq 0$.

ex: $\frac{1}{2}, \frac{3}{5}, \frac{6}{7}, \frac{8}{3}$

There are two type of Rational numbers

(a) positive rational numbers :-

ex: $\frac{3}{4}, \frac{5}{6}, \frac{7}{8}, \frac{9}{5}, \frac{10}{3}$

(b) Negative rational numbers :

ex: $-\frac{1}{2}, -\frac{3}{4}, -\frac{7}{8}, -\frac{10}{3}, -\frac{5}{6}$

Q1. Reduce $\frac{55}{66}$ into the standard form.

Solution: $\frac{55}{66}$, HCF of 55 and 66 is 11

By dividing $\frac{55}{66}$ from 11 we get

$$\frac{55 \div 11}{66 \div 11} = \frac{5}{6} \text{ Ans.}$$

Q2. Fill in the blanks with $>$, $<$, or $=$

(a) $\frac{5}{7} \square \frac{9}{5}$

Solution: By cross multiplication, we get

$$\frac{5}{7} \times \frac{9}{5}$$

$$(b.) \frac{2}{5} \square \frac{3}{4}$$

$$\approx 5 \times 5 \quad 9 \times 7$$

Solution: By cross multiplication

$$\approx 25 < 63$$

$$\frac{2}{5} \times \frac{3}{4}$$

$$\approx \frac{5}{7} \square \frac{9}{5}$$

$$\approx 2 \times 4 \quad 3 \times 5$$

$$\approx 8 < 15$$

$$\approx \frac{2}{5} \square \frac{3}{4}$$

Q3. Find the additive inverse of $-\frac{3}{8}$

Solution: Additive inverse of $-\frac{3}{8}$ is $\frac{3}{8}$

Q4. List 5 rational number between -4 and -3

Solution: Multiply numerator and denominator of -4 and -3 with $(5+1)=6$, we get

$$-4 \times \frac{6}{6} = \frac{-24}{6}$$

$$-3 \times \frac{6}{6} = \frac{-18}{6}$$

The rational numbers are

$$\frac{-23}{6}, \frac{-22}{6}, \frac{-21}{6}, \frac{-20}{6}, \frac{-19}{6}$$

Q5. Write 4 equivalent numbers for $\frac{3}{8}$.

Solution: $\frac{3}{8} \times \frac{2}{2} = \frac{6}{16}$

$$\frac{3}{8} \times \frac{3}{3} = \frac{9}{24}$$

$$\frac{3}{8} \times \frac{4}{4} = \frac{12}{32}$$

$$\frac{3}{8} \times \frac{5}{5} = \frac{15}{40}$$

Q 6. Find the value of $\frac{5}{8} + \frac{1}{3}$

Solution: LCM of 8 and 3 is 24

$$\frac{5 \times 3}{8 \times 3} = \frac{15}{24}$$

$$\frac{1 \times 8}{3 \times 8} = \frac{8}{24}$$

$$\therefore \frac{15}{24} + \frac{8}{24} = \frac{23}{24} \text{ Ans.}$$

Q 7. Simplify $\frac{2}{5} - \frac{1}{2}$

Solution: LCM of 5 and 2 is 10

$$\frac{2 \times 2}{5 \times 2} = \frac{4}{10}$$

$$\frac{1 \times 5}{2 \times 5} = \frac{5}{10}$$

$$\therefore \frac{4}{10} - \frac{5}{10} = -\frac{1}{10} \text{ Ans.}$$

Q 8. Find the product of $\frac{14}{3} \times \frac{21}{63}$

$$\text{Solution: } \frac{14}{\cancel{3}_1} \times \frac{21}{\cancel{63}^7_9} = \frac{2 \times 7}{9} = \frac{14}{9}$$

Q 9. Find the value of $\frac{1}{4} \div \frac{5}{8}$

Solution: Change the sign of \div by \times and inverse the divisor

$$\frac{1}{\cancel{4}_1} \times \frac{8}{5} = \frac{2 \times 1}{5} = \frac{2}{5}$$

Chapter 5 : Simple Equation

Q1. Write equations for the following

(a) Sum of numbers p and 5 is 11 .

Solution: $p + 5 = 11$

(b) Two third of a number z subtracted with 3 gives 5

Solution: $\frac{2}{3}z - 3 = 5$

Q2. Write statement for following

(a) $3q + 8 = 15$

Solution: Eight is added to three times number q gives 15 .

(b) $\frac{3}{4}m = 15$

Solution: Three fourth of a number m gives 15 .

Q3. Check whether the value given in brackets is solution to the given equation or not

(a) $n - 9 = 19$ ($n = 10$)

Solution: putting $n = 10$ in LHS

$$n - 9 = 19$$

$$\Rightarrow 10 - 9 = 19$$

$$\Rightarrow 1 \neq 19$$

 $\therefore n = 10$ is not a solution for the given equation

$$n - 9 = 19$$

(b) $2n + 10 = 20$ ($n = 5$)

Solution: putting $n = 5$ in LHS

$$2n + 10 = 20$$

$$\Rightarrow 2 \times 5 + 10 = 20$$

$$\Rightarrow 10 + 10 = 20$$

$$\Rightarrow 20 = 20$$

 $\therefore n = 5$ is the solution of equation

$$2n + 10 = 20$$

Q4. Give the first step to solve the following equation and then solve the equation.

(a) $p + 9 = 3$

Solution :- solution

Subtracting 9 from both sides, we get

$$p + 9 - 9 = 3 - 9$$

$$\text{or } p = -6$$

(b) $a - 12 = 15$

Solution: Adding 12 to both sides, we get

$$a - 12 + 12 = 15 + 12$$

$$\text{or } a = 27$$

Q5. Solve $2(p + 9) = -4$

Solution: $2(p + 9) = -4$

$$\text{or } 2 \times p + 2 \times 9 = -4$$

$$\text{or } 2p + 18 = -4$$

Subtracting 18 from both sides we get

$$2p + 18 - 18 = -4 - 18$$

$$\text{or } 2p = -22$$

Dividing 2 from both sides we get

$$\frac{2p}{2} = \frac{-22}{2}$$

$$\text{or } p = -11 \text{ Ans.}$$