

Class Notes	
Class: VII	Topic: CHAPTER -9 -RATIONAL NUMBERS EXERCISE -9.2
Subject: MATHEMATICS	

NOTES

- Two rational numbers with the same denominator can be added by adding their numerators, keeping the denominator same. Two rational numbers with different denominators are added by first taking the LCM of the two denominators and then converting both the rational numbers to their equivalent forms having the LCM as the denominator.

For example: $\frac{-2}{3} + \frac{3}{8} = \frac{-2 \times 8 + 3 \times 3}{24} = \frac{-16+9}{24} = \frac{-7}{24}$ Here, LCM of 3 and 8 is 24.

- While subtracting two rational numbers, we add the additive inverse of the rational number to be subtracted to the other rational number.
- To multiply two rational numbers, we multiply their numerators and denominators separately, and write the product as $\frac{\text{product of numerators}}{\text{product of denominators}}$
- To divide one rational number by the other non-zero rational number, we multiply the rational number (dividend) by the reciprocal of the other (divisor).

Thus, $\frac{-7}{2} \div \frac{4}{3} = \frac{-7}{2} \times \text{reciprocal of } \frac{4}{3} = \frac{-7}{2} \times \frac{3}{4} = \frac{-7 \times 3}{2 \times 4} = \frac{-21}{8}$

EXERCISE -9.2

Q1. Find the sum:

(i) $\frac{5}{4} + \left(\frac{-11}{4}\right) = \frac{5+(-11)}{4} = \frac{-6}{4} = \frac{-6 \div 2}{4 \div 2} = \frac{-3}{2}$ [Here HCF of 6,4 = 2]

(ii) $\frac{5}{3} + \frac{3}{5} = \frac{5 \times 5}{3 \times 5} + \frac{3 \times 3}{5 \times 3} = \frac{25+9}{15} = \frac{34}{15} = 2\frac{4}{15}$ [Here LCM of 3,5 = 15]

(iii) $\frac{-9}{10} + \frac{22}{15} = \frac{-9 \times 3}{10 \times 3} + \frac{22 \times 2}{15 \times 2} = \frac{-27+44}{30} = \frac{17}{30}$ [Here LCM of 10,15 = 30]

(iv) $\frac{-3}{-11} + \frac{5}{9} = \frac{-3 \times 9}{-11 \times 9} + \frac{5 \times 9}{11 \times 9} = \frac{27+55}{99} = \frac{82}{99}$ [Here LCM of 11,9 = 99]

(v) $\frac{-8}{19} + \frac{(-2)}{57} = \frac{-8 \times 3}{19 \times 3} + \frac{(-2) \times 1}{57 \times 1} = \frac{-24-2}{57} = \frac{-26}{57}$ [Here LCM of 19,57 = 57]

(vi) $\frac{-2}{3} + 0 = \frac{-2+0}{3} = \frac{-2}{3}$

Q2. Find

(i) $\frac{7}{24} - \frac{17}{36} = \frac{7 \times 3}{24 \times 3} - \frac{17 \times 2}{36 \times 2} = \frac{21-34}{72} = \frac{-13}{72}$ [Here LCM of 24,36 = 72]

(ii) $\frac{5}{63} - \left(\frac{-6}{21}\right) = \frac{5 \times 1}{63 \times 1} + \frac{6 \times 3}{21 \times 3} = \frac{5+18}{63} = \frac{23}{63}$ [Here LCM of 63,21 = 63]

$$(iii) \quad \frac{-6}{13} - \left(\frac{-7}{15}\right) = \frac{-6 \times 15}{13 \times 15} + \frac{7 \times 13}{15 \times 13} = \frac{-90+91}{195} = \frac{1}{195} \quad [\text{Here LCM of } 13, 15 = 195]$$

$$(iv) \quad \frac{-3}{8} - \frac{7}{11} = \frac{-3 \times 11}{8 \times 11} - \frac{7 \times 8}{11 \times 8} = \frac{-33-56}{88} = \frac{-89}{88} \quad [\text{Here LCM of } 8, 11 = 88]$$

$$(v) \quad -2\frac{1}{9} - 6 = \frac{-19}{9} - 6 = \frac{-19 \times 1}{9 \times 1} - \frac{6 \times 9}{1 \times 9} = \frac{-19-54}{9} = \frac{-73}{9} \quad [\text{Here LCM of } 9, 1 = 9]$$

Q3. Find the product:

$$(i) \quad \frac{-9}{2} \times \frac{7}{4} = \frac{-9 \times 7}{2 \times 4} = \frac{-63}{8}$$

$$(ii) \quad \frac{3}{10} \times -9 = \frac{3 \times (-9)}{10 \times 1} = \frac{-27}{10}$$

$$(iii) \quad \frac{-6}{5} \times \frac{9}{11} = \frac{-6 \times 9}{5 \times 11} = \frac{-54}{55}$$

$$(iv) \quad \frac{3}{7} \times \frac{-2}{5} = \frac{3 \times -2}{7 \times 5} = \frac{-6}{35}$$

Q4. Find the value of:

$$(i) \quad (-4) \div \frac{2}{3} = (-4) \times \frac{3}{2} = \frac{-12}{2} = -6 \quad [\text{Reciprocal of } \frac{2}{3} \text{ is } \frac{3}{2}]$$

$$(ii) \quad \frac{-3}{5} \div 2 = \frac{-3}{5} \times \frac{1}{2} = \frac{-3 \times 1}{5 \times 2} = \frac{-3}{10} \quad [\text{Reciprocal of } 2 \text{ is } \frac{1}{2}]$$

$$(iii) \quad \frac{-4}{5} \div -3 = \frac{-4}{5} \times \frac{-1}{3} = \frac{-4 \times -1}{5 \times 3} = \frac{4}{15} \quad [\text{Reciprocal of } -3 \text{ is } \frac{-1}{3}]$$

$$(iv) \quad \frac{-1}{8} \div \frac{3}{4} = \frac{-1}{8} \times \frac{4}{3} = \frac{-1 \times 4}{8 \times 3} = \frac{-4}{24} = \frac{-4 \div 4}{24 \div 4} = \frac{-1}{6} \quad [\text{Reciprocal of } \frac{3}{4} \text{ is } \frac{4}{3}]$$

$$(v) \quad \frac{-2}{13} \div \frac{1}{7} = \frac{-2}{13} \times \frac{7}{1} = \frac{-2 \times 7}{13 \times 1} = \frac{-14}{13} \quad [\text{Reciprocal of } \frac{1}{7} \text{ is } 7]$$

$$(vi) \quad \frac{-7}{12} \div \frac{-2}{13} = \frac{-7}{12} \times \frac{-13}{2} = \frac{-7 \times -13}{12 \times 2} = \frac{91}{24} \quad [\text{Reciprocal of } \frac{-2}{13} \text{ is } \frac{-13}{2}]$$

ASSIGNMENT: Exercise-9.2 -Remaining subparts of Q1 to Q4