

Board – CBSE

Class – 7th

Topic – Rational Numbers 9.2

Q.1 Find the sum:

$$(i) \frac{4}{5} + \left(\frac{-11}{4}\right) \quad (ii) \frac{5}{3} + \frac{3}{5} \quad (iii) \frac{-9}{10} + \frac{22}{15} \quad (iv) \frac{-3}{-11} + \frac{5}{9} \quad (v) \frac{-8}{19} + \frac{(-2)}{57}$$

$$(vi) \frac{-2}{3} + 0 \quad (vii) -2\frac{1}{3} + 4\frac{3}{5}$$

Sol: (i) $\frac{4}{5} + \left(\frac{-11}{4}\right) = \frac{4}{5} - \frac{11}{4} = \frac{16-55}{20} = \frac{-39}{20}$

$$(ii) \frac{5}{3} + \frac{3}{5}$$

L.C.M of 3 and 5 is 15.

$$\frac{5}{3} + \frac{3}{5} = \frac{5 \times 5}{3 \times 5} + \frac{3 \times 3}{5 \times 3} = \frac{25}{15} + \frac{9}{15} = \frac{25+9}{15} = \frac{34}{15}$$

$$(iii) \frac{-9}{10} + \frac{22}{15}$$

L.C.M of 10 and 15 is 30.

$$\frac{-9}{10} + \frac{22}{15} = \frac{-9 \times 3}{10 \times 3} + \frac{22 \times 2}{15 \times 2} = \frac{-27}{30} + \frac{44}{30} = \frac{-27+44}{30} = \frac{17}{30}$$

$$(iv) \frac{-3}{-11} + \frac{5}{9} = \frac{3}{11} + \frac{5}{9}$$

L.C.M of 11 and 9 is 99.

$$\frac{3}{11} + \frac{5}{9} = \frac{3 \times 9}{11 \times 9} + \frac{5 \times 11}{9 \times 11} = \frac{27}{99} + \frac{55}{99} = \frac{27+55}{99} = \frac{82}{99}$$

$$(v) \frac{-8}{19} + \frac{(-2)}{57} = -\frac{8 \times 3}{19 \times 3} - \frac{2}{57}$$

L.C.M of 19 and 57 is 57.

$$\frac{-8}{19} + \frac{(-2)}{57} = -\frac{8 \times 3}{19 \times 3} - \frac{2}{57} = -\frac{24}{57} - \frac{2}{57} = \frac{-24-2}{57} = \frac{-26}{57}$$

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

$$(vii) -2\frac{1}{3} + 4\frac{3}{5} = \frac{-7}{3} + \frac{23}{5}$$

L.C.M of 3 and 5 is 15.

$$\frac{-7}{3} + \frac{23}{5} = \frac{-7 \times 5}{3 \times 5} + \frac{23 \times 3}{5 \times 3} = \frac{-35}{15} + \frac{69}{15} = \frac{-35+69}{15} = \frac{34}{15}$$

Q.2 Find

$$(i) \frac{7}{24} - \frac{17}{36} \quad (ii) \frac{5}{63} - \left(\frac{-6}{21}\right) \quad (iii) \frac{-6}{13} - \left(\frac{-7}{15}\right) \quad (iv) \frac{-3}{8} - \frac{7}{11} \quad (v) -$$

$$2\frac{1}{9} - 6$$

Sol: (i) $\frac{7}{24} - \frac{17}{36}$

L.C.M of 24 and 36 is 72.

$$\frac{7}{24} - \frac{17}{36} = \frac{7 \times 3}{24 \times 3} - \frac{17 \times 2}{36 \times 2} = \frac{21}{72} - \frac{34}{72} = \frac{21-34}{72} = -\frac{13}{72}$$

$$(ii) \frac{5}{63} - \left(\frac{-6}{21}\right) = \frac{5}{63} + \frac{2}{7}$$

L.C.M of 63 and 7 is 63.

$$\frac{5}{63} + \frac{2}{7} = \frac{5}{63} + \frac{2 \times 9}{7 \times 9} = \frac{5}{63} + \frac{18}{63} = \frac{5+18}{63} = \frac{23}{63}$$

$$(iii) \frac{-6}{13} - \left(\frac{-7}{15}\right) = \frac{-6}{13} + \frac{7}{15}$$

L.C.M of 13 and 15 is 195.

$$\frac{-6}{13} + \frac{7}{15} = \frac{-6 \times 15}{13 \times 15} + \frac{7 \times 13}{15 \times 13} = \frac{-90}{195} + \frac{91}{195} = \frac{-90+91}{195} = \frac{1}{195}$$

$$(iv) \frac{-3}{8} - \frac{7}{11}$$

L.C.M of 8 and 11 is 88.

$$\frac{-3}{8} - \frac{7}{11} = -\frac{3 \times 11}{8 \times 11} - \frac{7 \times 8}{11 \times 8} = \frac{-33-56}{88} = \frac{-89}{88}$$

$$(v) -2\frac{1}{9} - 6 = \frac{19}{9} - \frac{54}{9}$$

L.C.M of 9 and 1 is 9.

$$\frac{19}{9} - \frac{54}{9} = \frac{-19-54}{9} = \frac{-73}{9}$$

Q.3 Find the product:

$$(i) \frac{9}{2} \times \left(\frac{-7}{4}\right) \quad (ii) \frac{3}{10} \times (-9) \quad (iii) \frac{-6}{5} \times \frac{9}{11} \quad (iv) \frac{3}{7}$$

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

$$(v) \frac{3}{11} \times \frac{2}{5} \quad (vi) \frac{3}{-5} \times \frac{-5}{3}$$

Sol: (i) $\frac{9}{2} \times \left(\frac{-7}{4}\right) = \frac{9 \times (-7)}{2 \times 4} = \frac{-63}{8}$

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

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

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

$$(v) \frac{3}{11} \times \frac{2}{5} = \frac{3 \times 2}{11 \times 5} = \frac{6}{55}$$

$$(vi) \frac{3}{-5} \times \frac{-5}{3} = \frac{3 \times (-5)}{(-5) \times 3} = \frac{-15}{-15} = 1$$

Q.4 Find the value of:

$$(i) (-4) \div \frac{2}{3}$$

$$(ii) \frac{-3}{5} \div 2$$

$$(iii) \frac{-4}{5} \div (-3)$$

$$(iv) \frac{-1}{8} \div \frac{3}{4}$$

$$(v) \frac{-2}{13} \div \frac{1}{7}$$

$$(vi) \frac{-7}{12} \div \left(\frac{-2}{13}\right)$$

$$(vii) \frac{3}{13} \div \left(\frac{-4}{65}\right)$$

Sol: (i) $(-4) \div \frac{2}{3} = -4 \times \frac{3}{2} = \frac{-12}{2} = -6$

$$(ii) \frac{-3}{5} \div 2 = \frac{-3}{5} \times \frac{1}{2} = \frac{-3 \times 1}{5 \times 2} = \frac{-3}{10}$$

$$(iii) \frac{-4}{5} \div (-3) = \frac{-4}{5} \times \frac{1}{-3} = \frac{(-4) \times 1}{5 \times (-3)} = \frac{-4}{-15} = \frac{4}{15}$$

$$(iv) \frac{-1}{8} \div \frac{3}{4} = \frac{-1}{8} \times \frac{4}{3} = \frac{-1 \times 4}{8 \times 3} = \frac{-4}{24} = \frac{-1}{6}$$

$$(v) \frac{-2}{13} \div \frac{1}{7} = \frac{-2}{13} \times 7 = \frac{-14}{13}$$

$$(vi) \frac{-7}{12} \div \left(\frac{-2}{13}\right) = \frac{-7}{12} \times \frac{13}{-2} = \frac{-91}{-24} = \frac{91}{24}$$

$$(vii) \frac{3}{13} \div \left(\frac{-4}{65}\right) = \frac{3}{13} \times \frac{65}{-4} = \frac{3 \times 65}{13 \times (-4)} = \frac{195}{-52} = -\frac{15}{4}$$