

CBSE Class –VII Mathematics
NCERT Solutions
Chapter 9 Rational Numbers (Ex. 9.2)

Question 1. Find the sum:

(i) $\frac{5}{4} + \left(\frac{-11}{4}\right)$

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

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

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

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

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

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

Answer: (i) $\frac{5}{4} + \left(\frac{-11}{4}\right) = \frac{5-11}{4} = \frac{-6}{4} = \frac{-3}{2}$

(ii) $\frac{5}{3} + \frac{3}{5} = \frac{5 \times 5}{3 \times 5} + \frac{3 \times 3}{5 \times 3} = \frac{25}{15} + \frac{9}{15}$

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

$= \frac{25+9}{15} = \frac{34}{15} = 2\frac{4}{15}$

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

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

$= \frac{-27+44}{30} = \frac{17}{30}$

(iv) $\frac{-3}{-11} + \frac{5}{9} = \frac{-3 \times 9}{-11 \times 9} + \frac{5 \times 11}{9 \times 11} = \frac{27}{99} + \frac{55}{99}$ [L.C.M. of 11 and 9 is 99]

$= \frac{27+55}{99} = \frac{82}{99}$

$$(v) \frac{-8}{19} + \frac{(-2)}{57} = \frac{-8 \times 3}{19 \times 3} + \frac{(-2) \times 1}{57 \times 1} = \frac{-24}{57} + \frac{(-2)}{57} \text{ [L.C.M. of 19 and 57 is 57]}$$

$$= \frac{-24-2}{57} = \frac{-26}{57}$$

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

$$(vii) -2\frac{1}{3} + 4\frac{3}{5} = \frac{-7}{3} + \frac{23}{5} = \frac{-7 \times 5}{3 \times 5} + \frac{23 \times 3}{5 \times 3} = \frac{-35}{15} + \frac{69}{15} \text{ [L.C.M. of 3 and 5 is 15]}$$

$$= \frac{-35+69}{15} = \frac{34}{15} = 2\frac{4}{15}$$

Question 2. Find:

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

$$(ii) \frac{5}{63} - \left(\frac{-6}{21}\right)$$

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

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

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

Answer: (i) $\frac{7}{24} - \frac{17}{36} = \frac{7 \times 3}{24 \times 3} - \frac{17 \times 2}{36 \times 2} = \frac{21}{72} - \frac{34}{72}$

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

$$= \frac{21-34}{72} = \frac{-13}{72}$$

$$(ii) \frac{5}{63} - \left(\frac{-6}{21}\right) = \frac{5 \times 1}{63 \times 1} - \left(\frac{-6 \times 3}{21 \times 3}\right) = \frac{5}{63} - \frac{-18}{63} \text{ [L.C.M. of 63 and 21 is 63]}$$

$$= \frac{5-(-18)}{63} = \frac{5+18}{63} = \frac{23}{63}$$

$$(iii) \frac{-6}{13} - \left(\frac{-7}{15}\right) = \frac{-6 \times 15}{13 \times 15} - \left(\frac{-7 \times 13}{15 \times 13}\right) = \frac{-90}{195} - \left(\frac{-91}{195}\right) \text{ [L.C.M. of 13 and 15 is 195]}$$

$$= \frac{-90-(-91)}{195} = \frac{-90+91}{195} = \frac{1}{195}$$

$$(iv) \frac{-3}{8} - \frac{7}{11} = \frac{-3 \times 11}{8 \times 11} - \frac{7 \times 8}{11 \times 8} = \frac{-33}{88} - \frac{56}{88}$$

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

$$= \frac{-33-56}{88} = \frac{-89}{88} = -1\frac{1}{88}$$

$$(v) -2\frac{1}{9} - 6 = \frac{-19}{9} - \frac{6}{1} = \frac{-19 \times 1}{9 \times 1} - \frac{6 \times 9}{1 \times 9} \text{ [L.C.M. of 9 and 1 is 9]}$$

$$= \frac{-19}{9} - \frac{54}{9} = \frac{-19-54}{9} = \frac{-73}{9} = -8\frac{1}{9}$$

Question 3. Find the product:

$$(i) \frac{9}{2} \times \left(\frac{-7}{4}\right)$$

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

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

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

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

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

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

$$(ii) \frac{3}{10} \times (-9) = \frac{3 \times (-9)}{10} = \frac{-27}{10} = -2\frac{7}{10}$$

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

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

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

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

Question 4. Find the value of:

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

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

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

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

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

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

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

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

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

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

$$(iv) \frac{-1}{8} \div \frac{3}{4} = \frac{-1}{8} \times \frac{4}{3} = \frac{(-1) \times 4}{2 \times 3} = \frac{-1}{6}$$

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

$$(vi) \frac{-7}{12} \div \left(\frac{-2}{13}\right) = \frac{-7}{12} \times \frac{13}{(-2)} = \frac{(-7) \times 13}{12 \times (-2)} = \frac{-91}{24} = 3 \frac{19}{24}$$

$$(vii) \frac{3}{13} \div \left(\frac{-4}{65}\right) = \frac{3}{13} \times \frac{65}{(-4)} = \frac{3 \times (-5)}{1 \times 4} = \frac{-15}{4} = -3 \frac{3}{4}$$