

Mathematics

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(Chapter – 9) (Rational Numbers)

(Class – VII)

Exercise 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 1:

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

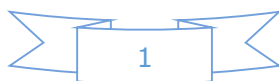
(ii) $\frac{5}{3} + \frac{3}{5} = \frac{5 \times 5}{3 \times 5} + \frac{3 \times 3}{5 \times 3} = \frac{25}{15} + \frac{9}{15}$ [L.C.M. of 3 and 5 is 15]
 $= \frac{25+9}{15} = \frac{34}{15} = 2\frac{4}{15}$

(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) $\frac{-8}{19} + \frac{(-2)}{57} = \frac{-8 \times 3}{19 \times 3} + \frac{(-2) \times 1}{57 \times 1} = \frac{-24}{57} + \frac{(-2)}{57}$ [L.C.M. of 19 and 57 is 57]
 $= \frac{-24-2}{57} = \frac{-26}{57}$

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



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$$\begin{aligned} \text{(vii)} \quad -2\frac{1}{3} + 4\frac{3}{5} &= \frac{-7}{3} + \frac{23}{5} = \frac{-7 \times 5}{3 \times 5} + \frac{23 \times 3}{5 \times 3} = \frac{-35}{15} + \frac{69}{15} \quad [\text{L.C.M. of 3 and 5 is 15}] \\ &= \frac{-35 + 69}{15} = \frac{34}{15} = 2\frac{4}{15} \end{aligned}$$

Question 2:

Find:

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

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

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

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

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

Answer 2:

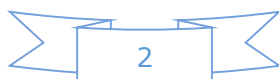
$$\begin{aligned} \text{(i)} \quad \frac{7}{24} - \frac{17}{36} &= \frac{7 \times 3}{24 \times 3} - \frac{17 \times 2}{36 \times 2} = \frac{21}{72} - \frac{34}{72} \quad [\text{L.C.M. of 24 and 36 is 72}] \\ &= \frac{21 - 34}{72} = \frac{-13}{72} \end{aligned}$$

$$\begin{aligned} \text{(ii)} \quad \frac{5}{63} - \left(\frac{-6}{21} \right) &= \frac{5 \times 1}{63 \times 1} - \left(\frac{-6 \times 3}{21 \times 3} \right) = \frac{5}{63} - \frac{-18}{63} \quad [\text{L.C.M. of 63 and 21 is 63}] \\ &= \frac{5 - (-18)}{63} = \frac{5 + 18}{63} = \frac{23}{63} \end{aligned}$$

$$\begin{aligned} \text{(iii)} \quad \frac{-6}{13} - \left(\frac{-7}{15} \right) &= \frac{-6 \times 15}{13 \times 15} - \left(\frac{-7 \times 13}{15 \times 13} \right) = \frac{-90}{195} - \left(\frac{-91}{195} \right) \quad [\text{L.C.M. of 13 and 15 is 195}] \\ &= \frac{-90 - (-91)}{195} = \frac{-90 + 91}{195} = \frac{1}{195} \end{aligned}$$

$$\begin{aligned} \text{(iv)} \quad \frac{-3}{8} - \frac{7}{11} &= \frac{-3 \times 11}{8 \times 11} - \frac{7 \times 8}{11 \times 8} = \frac{-33}{88} - \frac{56}{88} \quad [\text{L.C.M. of 8 and 11 is 88}] \\ &= \frac{-33 - 56}{88} = \frac{-89}{88} = -1\frac{1}{88} \end{aligned}$$

$$\begin{aligned} \text{(v)} \quad -2\frac{1}{9} - 6 &= \frac{-19}{9} - \frac{6}{1} = \frac{-19 \times 1}{9 \times 1} - \frac{6 \times 9}{1 \times 9} \quad [\text{L.C.M. of 9 and 1 is 9}] \\ &= \frac{-19}{9} - \frac{54}{9} = \frac{-19 - 54}{9} = \frac{-73}{9} = -8\frac{1}{9} \end{aligned}$$



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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 3:

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



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 **Answer 4:**

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

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

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

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

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

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

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



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