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) $\frac{5}{3}+\frac{3}{5}=\frac{5\times5}{3\times5}+\frac{3\times3}{5\times3}=\frac{25}{15}+\frac{9}{15}$ [L.C.M. of 3 and 5 is 15]

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

(iii) $\frac{-9}{10}+\frac{22}{15}=\frac{-9\times3}{10\times3}+\frac{22\times2}{15\times2}=\frac{-27}{30}+\frac{44}{30}$ [L.C.M. of 10 and 15 is 30]

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

(iv) $\frac{-3}{-11}+\frac{5}{9}=\frac{-3\times9}{-11\times9}+\frac{5\times11}{9\times11}=\frac{27}{99}+\frac{55}{99}$ [L.C.M. of 11 and 9 is 99]

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

(v) $\frac{-8}{19}+\frac{(-2)}{57}=\frac{-8\times3}{19\times3}+\frac{(-2)\times1}{57\times1}=\frac{-24}{57}+\frac{(-2)}{57}$ [L.C.M. of 19 and 57 is 57]

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

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

(vii) $-2\frac{1}{3}+4\frac{3}{5}=\frac{-7}{3}+\frac{23}{5}=\frac{-7\times5}{3\times5}+\frac{23\times3}{5\times3}=\frac{-35}{15}+\frac{69}{15}$ [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 2:

(i) $\frac{7}{24}-\frac{17}{36}=\frac{7\times3}{24\times3}-\frac{17\times2}{36\times2}=\frac{21}{72}-\frac{34}{72}$ [L.C.M. of 24 and 36 is 72]

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

(ii) $\frac{5}{63}-\left(\frac{-6}{21}\right)=\frac{5\times1}{63\times1}-\left(\frac{-6\times3}{21\times3}\right)=\frac{5}{63}-\frac{-18}{63}$ [L.C.M. of 63 and 21 is 63]

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

(iii) $\frac{-6}{13}-\left(\frac{-7}{15}\right)=\frac{-6\times15}{13\times15}-\left(\frac{-7\times13}{15\times13}\right)=\frac{-90}{195}-\left(\frac{-91}{195}\right)$ [L.C.M. of 13 and 15 is 195]

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

(iv) $\frac{-3}{8}-\frac{7}{11}=\frac{-3\times11}{8\times11}-\frac{7\times8}{11\times8}=\frac{-33}{88}-\frac{56}{88}$ [L.C.M. of 8 and 11 is 88]

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

(v) $-2\frac{1}{9}-6=\frac{-19}{9}-\frac{6}{1}=\frac{-19\times1}{9\times1}-\frac{6\times9}{1\times9}$ [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 3:

(i) $\frac{9}{2}\times\left(\frac{-7}{4}\right)=\frac{9\times(-7)}{2\times4}=\frac{-63}{8}=-7\frac{7}{8}$

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

(iii) $\frac{-6}{5}\times\frac{9}{11}=\frac{(-6)\times9}{5\times11}=\frac{-54}{55}$

(iv) $\frac{3}{7}\times\left(\frac{-2}{5}\right)=\frac{3\times(-2)}{7\times5}=\frac{-6}{35}$

(v) $\frac{3}{11}\times\frac{2}{5}=\frac{3\times2}{11\times5}=\frac{6}{55}$

(vi) $\frac{3}{-5}\times\left(\frac{-5}{3}\right)=\frac{3\times(-5)}{-5\times3}=1$

Question 4:

Find the value of:

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

(ii) $\frac{-3}{5}\div2$

(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 4:

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

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