SpeedLabs

MATHS

CBSE 7th

TEEVRA EDUTECH PVT. LTD.

Rational Numbers
Exercise-9.2

Q.1 Find the sum:

$(i)\frac{4}{5}+\left(\frac{-11}{4}\right)(ii)\frac{5}{3}+\frac{3}{5}(iii)\frac{-9}{10}+\frac{22}{15}(iv)\frac{-3}{-11}+\frac{5}{9}$

$(v)\frac{-8}{19}+\frac{(-2)}{57}(vi)\frac{-2}{3}+0(vii)-2\frac{1}{3}+4\frac{3}{5}$

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.

$\frac{5}{3}+\frac{3}{5}=\frac{5\times5}{3\times5}+\frac{3\times3}{5\times3}=\frac{25}{15}+\frac{9}{15}=\frac{25+9}{15}=\frac{34}{15}$

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

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

$\frac{-9}{10}+\frac{22}{15}=\frac{-9\times3}{10\times3}+\frac{22\times2}{15\times2}=\frac{-27}{30}+\frac{44}{30}=\frac{-27+44}{30}=\frac{17}{30}$

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

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

$\frac{3}{11}+\frac{5}{9}=\frac{3\times9}{11\times9}+\frac{5\times11}{9\times11}=\frac{27}{99}+\frac{55}{99}=\frac{27+55}{99}=\frac{82}{99}$

$(v)\ \frac{-8}{19}+\frac{(-2)}{57}=-\frac{8\times3}{19\times3}-\frac{2}{57}$

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

$\frac{-8}{19}+\frac{(-2)}{57}=-\frac{8\times3}{19\times3}-\frac{2}{57}=-\frac{24}{57}-\frac{2}{57}=\frac{-24-2}{57}=\frac{-26}{57}$

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

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

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

$\frac{-7}{3}+\frac{23}{5}=\frac{-7\times5}{3\times5}+\frac{23\times3}{5\times3}=\frac{-35}{15}+\frac{69}{15}=\frac{-35+69}{15}=\frac{34}{15}$

Q.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) $-2\frac{1}{9}-6$

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

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

$\frac{7}{24}-\frac{17}{36}=\frac{7\times3}{24\times3}-\frac{17\times2}{36\times2}=\frac{21}{72}-\frac{34}{72}=\frac{21-34}{72}=-\frac{13}{72}$

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

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

$\frac{5}{63}+\frac{2}{7}=\frac{5}{63}+\frac{2\times9}{7\times9}=\frac{5}{63}+\frac{18}{63}=\frac{5+18}{63}=\frac{23}{63}$

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

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

$\frac{-6}{13}+\frac{7}{15}=\frac{-6\times15}{13\times15}+\frac{7\times13}{15\times13}=\frac{-90}{195}+\frac{91}{195}=\frac{-90+91}{195}=\frac{1}{195}$

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

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

$\frac{-3}{8}-\frac{7}{11}=-\frac{3\times11}{8\times11}-\frac{7\times8}{11\times8}=\frac{-33-56}{88}=\frac{-89}{88}$

(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) $\frac{9}{2}\times\left(\frac{-7}{4}\right)$ (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) $\frac{3}{-5}\times\frac{-5}{3}$

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

(ii) $\frac{3}{10}\times(-9)=\frac{3\times(-9)}{10\times1}=\frac{-27}{10}$

(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) $\frac{3}{-5} \times \frac{-5}{3} = \frac{3\times(-5)}{(-5)\times3} = \frac{-15}{-15} = 1$

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) $\frac{-3}{5} \div 2 = \frac{-3}{5} \times \frac{1}{2} = \frac{-3\times1}{5\times2} = = \frac{-3}{10}$

(iii) $\frac{-4}{5} \div (-3) = \frac{-4}{5} \times \frac{1}{-3} = \frac{(-4)\times1}{5\times(-3)} = \frac{-4}{-15} = \frac{4}{15}$

(iv) $\frac{-1}{8} \div \frac{3}{4} = \frac{-1}{8} \times \frac{4}{3} = \frac{-1\times4}{8\times3} = \frac{-4}{24} = \frac{-1}{6}$

(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) $\frac{3}{13} \div \left(\frac{-4}{65}\right) = \frac{3}{13} \times \frac{65}{-4} = \frac{3\times65}{13\times(-4)} = \frac{195}{-52} = -\frac{15}{4}$