# Chapter - 1 - Rational numbers

## Exercise 1.1

Q.1 Add the following Rational numbers:

(i) $-\frac{5}{7}$ and $\frac{3}{7}$ (ii) $-\frac{15}{4}$ and $\frac{7}{4}$ (iii) $-\frac{8}{11}$ and $-\frac{4}{11}$

(iv) $\frac{6}{13}$ and $-\frac{9}{13}$

Solution: (i) $-\frac{5}{7}+\frac{3}{7} = \frac{-5+3}{7} = \frac{-2}{7}$

(ii) $\frac{-15}{4}+\frac{7}{4} = \frac{-15+7}{4} = \frac{-8}{4} = -2$

(iii) $\frac{-8}{11}+\frac{-4}{11} = \frac{-8-4}{11} = \frac{-12}{11}$

(iv) $\frac{6}{13}+\frac{-9}{13} = \frac{6-9}{13} = \frac{-3}{13}$

Q.2 Add the following Rational numbers:

(i) $\frac{3}{4}$ and $-\frac{5}{8}$ (ii) $\frac{5}{-9}$ and $\frac{7}{3}$ (iii) $-3$ and $\frac{3}{5}$

(iv) $\frac{-7}{27}$ and $\frac{11}{18}$ (v) $\frac{31}{-4}$ and $-\frac{5}{8}$ (vi) $\frac{5}{36}$ and $\frac{-7}{12}$

(vii) $-\frac{5}{16}$ and $\frac{7}{24}$ (viii) $\frac{7}{-18}$ and $\frac{8}{27}$

docs.aglasem.com

aglasem.com

Solution: (i) $\frac{3}{4} + \left(\frac{-5}{8}\right) = \frac{6-5}{8} = \frac{3}{8}$

(ii) $\frac{5}{-9} + \frac{7}{3} = \frac{-5}{9} + \frac{7}{3} = \frac{-5+21}{9} = \frac{16}{9}$

(iii) $-3 + \frac{3}{5} = \frac{-15+3}{5} = \frac{-12}{5}$

(iv) $\frac{-7}{27} + \frac{11}{18} = \frac{-14+33}{54} = \frac{19}{54}$

(v) $\frac{31}{-4} + \frac{-5}{8} = \frac{-31}{4} - \frac{5}{8} = \frac{-62-5}{8} = \frac{-67}{8}$

(vi) $\frac{5}{36} + \frac{-7}{12} = \frac{5-21}{36} = \frac{-16}{36} = \frac{-4}{9}$

(vii) $\frac{-5}{16} + \frac{7}{24} = \frac{-15+14}{48} = \frac{-1}{48}$

(viii) $\frac{7}{-18} + \frac{8}{27} = \frac{-7}{18} + \frac{8}{27} = \frac{-21+16}{54} = \frac{-5}{54}$

Q.3 Simplify (i) $\frac{8}{9} + \frac{-11}{6}$ (ii) $\frac{-5}{16} + \frac{7}{24}$

(iii) $\frac{1}{-12} + \frac{2}{-15}$ (iv) $\frac{-8}{19} + \frac{-4}{57}$ (v) $\frac{7}{9} + \frac{3}{-4}$

(vi) $\frac{5}{26} + \frac{11}{-39}$ (vii) $\frac{-16}{9} + \frac{-5}{12}$ (viii) $\frac{-13}{8} + \frac{5}{36}$.

docs.aglasem.com

aglasem.com

(ix) $0 + \frac{-3}{5}$ (x) $1 + \frac{-4}{5}$ (xi) $3 + \frac{5}{-7}$

Solution: (i) $\frac{8}{9} + \frac{-11}{6} = \frac{16 + (-33)}{18} = \frac{-17}{18}$

(ii) $\frac{-5}{16} + \frac{7}{24} = \frac{-15 + 14}{48} = \frac{-1}{48}$

(iii) $\frac{1}{-12} + \frac{2}{-15} = \frac{-1}{12} - \frac{2}{15} = \frac{-5 - 8}{60} = \frac{-13}{60}$

(iv) $\frac{-8}{19} + \frac{-4}{57} = \frac{-24 + (-4)}{57} = \frac{-28}{57}$

(v) $\frac{7}{9} + \frac{3}{-4} = \frac{7}{9} - \frac{3}{4} = \frac{28 - 27}{36} = \frac{1}{36}$

(vi) $\frac{5}{26} + \frac{11}{-39} = \frac{5}{26} - \frac{11}{39} = \frac{15 - 22}{78} = \frac{-7}{78}$

(vii) $\frac{-16}{9} + \frac{-5}{12} = \frac{-64 + (-15)}{36} = \frac{-79}{36}$

(viii) $\frac{-13}{8} + \frac{5}{36} = \frac{-117 + 10}{72} = \frac{-107}{72}$

(ix) $0 + \frac{-3}{5} = \frac{-3}{5}$

(x) $1 + \frac{-4}{5} = \frac{5 - 4}{5} = \frac{1}{5}$

(xi) $3 + \frac{5}{-7} = 3 - \frac{5}{7} = \frac{21 - 5}{7} = \frac{16}{7}$

docs.aglasem.com

aglasem.com

Q4 Add and express the sum as a mixed fraction.

(i) $-\frac{12}{5}$ and $\frac{43}{10}$ (ii) $\frac{24}{7}$ and $\frac{-11}{4}$

(iii) $-\frac{31}{6}$ and $-\frac{27}{8}$ (iv) $\frac{101}{6}$ and $\frac{7}{8}$

Solution: (i) $-\frac{12}{5}+\frac{43}{10}=\frac{-24+43}{10}=\frac{19}{10}=1\frac{9}{10}$

(ii) $\frac{24}{7}+\left(\frac{-11}{4}\right)=\frac{96-77}{28}=\frac{19}{28}$

(iii) $-\frac{31}{6}+\frac{-27}{8}=\frac{-31\times4+(-27\times3)}{24}$

$=\frac{-124-81}{24}=\frac{-205}{24}=-8\frac{13}{24}$

(iv) $\frac{101}{6}+\frac{7}{8}=\frac{(101\times4)+(7\times3)}{24}=\frac{404+21}{24}=\frac{425}{24}$

$=17\frac{17}{24}$

docs.aglasem.com

aglasem.com