Operations on Rational Numbers Ex 5.4 Q1

Answer :

$$\text{(i)}\ 1 \div \frac{1}{2} = 1 \times \frac{2}{1} = 2$$

$$\text{(ii)}\ 5 \div \frac{-5}{7} = 5 \times \frac{7}{-5} = -7$$

$$\text{(iii)}\ \frac{-3}{4} \div \frac{9}{-16} = \frac{-3}{4} \times \frac{-16}{9} = \frac{-3}{4} \times \frac{-4\times4}{3\times3} = \frac{4}{3}$$

$$\text{(iv)}\ \frac{-7}{8} \div \frac{-21}{16} = \frac{-7}{8} \times \frac{-16}{21} = \frac{-7}{8} \times \frac{-8\times2}{7\times3} = \frac{2}{3}$$

$$\text{(v)}\ \frac{7}{-4} \div \frac{63}{64} = \frac{7}{-4} \times \frac{64}{63} = \frac{-7}{4} \times \frac{4\times16}{7\times9} = \frac{-16}{9}$$

$$\text{(vi)}\ 0 \div \frac{-7}{5} = 0 \times \frac{-7}{5} = 0$$

$$\text{(vii)}\ \frac{-3}{4} \div -6 = \frac{-3}{4} \times \frac{-1}{6} = \frac{-3}{4} \times \frac{-1}{2\times3} = \frac{1}{8}$$

$$\text{(viii)}\ \frac{2}{3} \div \frac{-7}{12} = \frac{2}{3} \times \frac{-12}{7} = \frac{2}{3} \times \frac{-4\times3}{7} = \frac{-8}{7}$$

Operations on Rational Numbers Ex 5.4 Q2

Answer :

$$(i)\ \frac{2}{5} \div \frac{26}{15} = \frac{2}{5} \times \frac{15}{26} = \frac{2}{5} \times \frac{3\times5}{2\times13} = \frac{3}{13}$$

$$(ii)\ \frac{10}{3} \div \frac{-35}{12} = \frac{10}{3} \times \frac{-12}{35} = \frac{2\times5}{3} \times \frac{-3\times4}{5\times7} = \frac{-8}{7}$$

$$(iii)\ -6 \div \frac{-8}{17} = -6 \times \frac{-17}{8} = -2\times3 \times \frac{-17}{2\times4} = \frac{51}{4}$$

$$(iv)\ \frac{40}{98} \div -20 = \frac{40}{98} \times \frac{1}{-20} = \frac{2\times20}{2\times49} \times \frac{-1}{20} = \frac{-1}{49}$$

Operations on Rational Numbers Ex 5.4 Q3

Answer :

Let the first rational number = x.

Second number = -10

Their product = 15

Then, we have

$$x \times -10 = 15$$

$$\Rightarrow x = 15 \times \frac{1}{-10} = 5 \times 3 \times \frac{-1}{2 \times 5} = \frac{-3}{2}$$

Operations on Rational Numbers Ex 5.4 Q4

Answer :

Let the first rational number = x

Second number $= \frac{-4}{15}$

Their product $= \frac{-8}{9}$

Then, we have

$$x \times \frac{-4}{15} = \frac{-8}{9}$$

$$\Rightarrow x = \frac{-8}{9} \times \frac{-15}{4} = \frac{-2 \times 4}{3 \times 3} \times \frac{-3 \times 5}{4} = \frac{10}{3}$$

Operations on Rational Numbers Ex 5.4 Q5

Answer :

Let x be the number by which we should multiply $\frac{-1}{6}$ to get $\frac{-23}{9}$.

Then, according to the question, we have

$$\frac{-1}{6} \times x = \frac{-23}{9}$$

$$\Rightarrow x = \frac{-23}{9} \times \left(-6\right) = \frac{46}{3}$$

********** END **********