



Exercise 1E

Q8

Answer :

Let the number be x .

Now,

$$\frac{-33}{8} \div x = \frac{-11}{2}$$

$$\Rightarrow \frac{-33}{8} \times \frac{1}{x} = \frac{-11}{2}$$

$$\Rightarrow \frac{1}{x} = \frac{-11}{2} \div \frac{-33}{8}$$

$$\Rightarrow \frac{1}{x} = \frac{-11}{2} \times \frac{8}{-33}$$

$$\Rightarrow \frac{1}{x} = \frac{88}{66}$$

$$\Rightarrow \frac{1}{x} = \frac{4}{3}$$

$$\Rightarrow x = \frac{3}{4} \quad \left(\text{Reciprocal of } \frac{4}{3} \right)$$

Q9

Answer :

$$\begin{aligned}& \left(\frac{13}{5} + \frac{-12}{7} \right) \div \left(\frac{-31}{7} \times \frac{1}{-2} \right) \\&= \left(\frac{91-60}{35} \right) \div \left(\frac{-31}{-14} \right) \\&= \left(\frac{31}{35} \right) \div \left(\frac{31}{14} \right) \\&= \left(\frac{31}{35} \right) \times \left(\frac{14}{31} \right) \\&= \frac{14}{35} \\&= \frac{14 \div 7}{35 \div 7} \\&= \frac{2}{5}\end{aligned}$$

Q10

Answer :

$$\begin{aligned}& \left(\frac{65}{12} + \frac{8}{3} \right) \div \left(\frac{65}{12} - \frac{8}{3} \right) \\&= \left(\frac{65}{12} + \frac{32}{12} \right) \div \left(\frac{65}{12} - \frac{32}{12} \right) \\&= \left(\frac{97}{12} \right) \div \left(\frac{33}{12} \right) \\&= \frac{97}{12} \times \frac{12}{33} \\&= \frac{97}{33}\end{aligned}$$

Q11

Answer :

(i)

$$\text{Let } \frac{9}{8} \div x = \frac{-3}{2}$$

$$\Rightarrow \frac{9}{8} \times \frac{1}{x} = \frac{-3}{2}$$

$$\Rightarrow \frac{1}{x} = \frac{-3}{2} \div \frac{9}{8}$$

$$\Rightarrow \frac{1}{x} = \frac{-3}{2} \times \frac{8}{9}$$

$$\Rightarrow \frac{1}{x} = \frac{-24}{18}$$

$$\Rightarrow \frac{1}{x} = \frac{-4}{3}$$

$$\Rightarrow x = \frac{-3}{4} \quad \left[\text{Reciprocal of } \frac{-4}{3} \right]$$

(ii)

$$\text{Let } x \div \left(\frac{-7}{5} \right) = \frac{10}{19}$$

$$\Rightarrow x \times \left(\frac{5}{-7} \right) = \frac{10}{19}$$

$$\Rightarrow x = \left(\frac{10}{19} \right) \div \left(\frac{5}{-7} \right)$$

$$\Rightarrow x = \frac{10}{19} \times \frac{-7}{5}$$

$$\Rightarrow x = \frac{-14}{19}$$

(iii)

$$\text{Let } x \div (-3) = \frac{-4}{15}$$

$$\Rightarrow x \times \left(\frac{1}{-3}\right) = \frac{-4}{15}$$

$$\Rightarrow x = \frac{-4}{15} \times (-3)$$

$$\Rightarrow x = \frac{12}{15}$$

$$\Rightarrow x = \frac{4}{5}$$

(iv)

$$\text{Let } (-12) \div x = \frac{-6}{5}$$

$$\Rightarrow (-12) \times \frac{1}{x} = \frac{-6}{5}$$

$$\Rightarrow \frac{1}{x} = \frac{-6}{5} \div (-12)$$

$$\Rightarrow \frac{1}{x} = \frac{-6}{5} \times \frac{1}{-12}$$

$$\Rightarrow \frac{1}{x} = \frac{1}{10}$$

$$\Rightarrow x = 10$$

Answer :

(i) No, rational numbers are not closed under division in general.

$\frac{a}{0} = \infty$; it is not a rational number.

(ii) No

$$\frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \times \frac{d}{c} = \frac{ad}{bc}$$

Also,

$$\frac{c}{d} \div \frac{a}{b} = \frac{c}{d} \times \frac{b}{a} = \frac{cb}{da} \text{ Thus, } \frac{a}{b} \div \frac{c}{d} \neq \frac{c}{d} \div \frac{a}{b}$$

Therefore, division is not commutative.

(iii) No, rational numbers are not associative under division.

$$\frac{a}{b} \div \left(\frac{c}{d} \div \frac{e}{f} \right) \neq \left(\frac{a}{b} \div \frac{c}{d} \right) \div \frac{e}{f}$$

(iv) No, we cannot divide 1 by 0. The answer will be ∞ , which is not defined.

***** END *****