



Exercise 1C

Q12

Answer :

Let the required number be x .

Now,

$$-1 + x = \frac{5}{7}$$

$$\Rightarrow -1 + x + 1 = \frac{5}{7} + 1 \quad (\text{Adding } 1 \text{ to both the sides})$$

$$\Rightarrow x = \left(\frac{5+7}{7} \right)$$

$$\Rightarrow x = \frac{12}{7}$$

Hence, the required number is $\frac{12}{7}$.

Q13

Answer :

Let the required number be x .

Now,

$$\frac{-2}{3} - x = \frac{-1}{6}$$

$$\Rightarrow \frac{-2}{3} - x + x = \frac{-1}{6} + x \quad (\text{Adding } x \text{ to both the sides})$$

$$\Rightarrow \frac{-2}{3} = \frac{-1}{6} + x$$

$$\Rightarrow \frac{-2}{3} + \frac{1}{6} = \frac{-1}{6} + x + \frac{1}{6} \quad (\text{Adding } \frac{1}{6} \text{ to both the sides})$$

$$\Rightarrow \left(\frac{-4}{6} + \frac{1}{6} \right) = x$$

$$\Rightarrow \left(\frac{-4+1}{6} \right) = x$$

$$\Rightarrow \frac{-3}{6} = x$$

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

$$\Rightarrow \frac{-1}{2} = x$$

Hence, the required number is $\frac{-1}{2}$.

Q14

Answer :

1. Zero is a rational number that is its own additive inverse.

2. Yes

Consider $ab-cd$ (with a, b, c and d as integers), where b and d are not equal to 0.

$ab-cd$ implies $adbd-bcbd$ implies $ad-bcbd$

Since ad, bc and bd are integers since integers are closed under the operation of multiplication and $ad-bc$ is an integer since integers are closed under the operation of subtraction, then $ad-bcbd$

since it is in the form of one integer divided by another and the denominator is not equal to 0

Since, b and d were not equal to 0

Thus, $ab-cd$ is a rational number.

3. Yes, rational numbers are commutative under addition. If a and b are rational numbers, then the commutative law under addition is $a+b=b+a$.

4. Yes, rational numbers are associative under addition. If a, b and c are rational numbers, then the associative law under addition is $a+(b+c)=(a+b)+c$.

5. No, subtraction is not commutative on rational numbers. In general, for any two rational numbers, $(a-b) \neq (b-a)$.

6. Rational numbers are not associative under subtraction. Therefore,
 $a-(b-c) \neq (a-b)-c$.

7. Negative of a negative rational number is a positive rational number.

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