Exercise 1C

Q12

Answer :

Let the required number be *x*.

Now,

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

$\Rightarrow -1+x+1=\frac{5}{7}+1$ (Adding 1 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,

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

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

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

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

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

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

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

$\Rightarrow \frac{-1\times3}{2\times3}=x$

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

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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