

Question 9:

Is 0.3 the multiplicative inverse of $3\frac{1}{3}$? Why or why not?

Solution:

$$3\frac{1}{3} = \frac{10}{3}$$

$$0.3 \times 3\frac{1}{3} = 0.3 \times \frac{10}{3} = \frac{3}{10} \times \frac{10}{3} = 1$$

Here, the product is 1. Hence, 0.3 is the multiplicative inverse of $3\frac{1}{3}$.

Question 10:

Write:-

- (i) The rational number that does not have a reciprocal.
- (ii) The rational numbers that are equal to their reciprocals.
- (iii) The rational number that is equal to its negative.

Solution:

- (i) 0 is a rational number but its reciprocal is not defined.
- (ii) 1 and -1 are the rational numbers that are equal to their reciprocals.
- (iii) 0 is the rational number that is equal to its negative.

Question 11:

Fill in the blanks.

- (i) Zero has _____ reciprocal.
- (ii) The numbers _____ and _____ are their own reciprocals.
- (iii) The reciprocal of -5 is _____.
- (iv) Reciprocal of $\frac{1}{x}$, where $x \neq 0$ is _____.
- (v) The product of two rational numbers is always a _____.

Question 5:

Name the property under multiplication used in each of the following:

$$(i) \quad \frac{-4}{5} \times 1 = 1 \times \frac{-4}{5} = -\frac{4}{5}$$

$$(ii) \quad \frac{-13}{17} \times \frac{-2}{7} = \frac{-2}{7} \times \frac{-13}{17}$$

$$(iii) \quad \frac{-19}{29} \times \frac{29}{-19} = 1$$

Solution:

$$(i) \quad \frac{-4}{5} \times 1 = 1 \times \frac{-4}{5} = -\frac{4}{5}$$

1 is the multiplicative identity.

(ii) Commutativity

(iii) Multiplicative inverse

Question 6:

Multiply $\frac{6}{13}$ by the reciprocal of $\frac{-7}{16}$.

Solution:

$$\frac{6}{13} \times \left(\text{Reciprocal of } -\frac{7}{16} \right) = \frac{6}{13} \times -\frac{16}{7} = -\frac{96}{91}$$

Question 7:

Tell what property allows you to compute

$$\frac{1}{3} \times \left(6 \times \frac{4}{3} \right) \text{ as } \left(\frac{1}{3} \times 6 \right) \times \frac{4}{3}.$$

Solution:

Associativity

Question 8:

Is $\frac{8}{9}$ the multiplicative inverse of $-1\frac{1}{8}$? Why or why not?

Solution:

If it is the multiplicative inverse, then the product should be 1.

However, here, the product is not 1 as

$$\frac{8}{9} \times \left(-1\frac{1}{8} \right) = \frac{8}{9} \times \left(-\frac{9}{8} \right) = -1 \neq 1$$