Codingal

Properties of Rational Numbers

1) ***Commutative property***: *While* ***multiplying****, any two rational numbers can be _____ in any order, and yet their _____ remains the same.*

2) *If a and b are integers and* $b \neq 0$ *, which of the following demonstrates the commutative property of* ***multiplication*** *for rational numbers* $\frac{a}{b}$ *and* $\frac{c}{d}$ *?*

a) $\frac{a}{b} + \frac{c}{d} = \frac{c}{d} - \frac{a}{b}$

c) $\frac{a}{b} - \frac{c}{d} = \frac{c}{d} - \frac{a}{b}$

b) $\frac{a}{b} \div \frac{c}{d} = \frac{c}{d} \div \frac{a}{b}$

d) $\frac{a}{b} \times \frac{c}{d} = \frac{c}{d} \times \frac{a}{b}$

3) *Which of the following operations is* ***not*** *commutative for rational numbers?*

a) Addition *b) Subtraction* *c) Multiplication* *d) both a and c*

4) *Which expression demonstrates the commutative property of* ***multiplication*** *for rational numbers* $\frac{-2}{3}$ *and* $\frac{5}{7}$ *?*

a) $\frac{-2}{3} \times \frac{5}{7} = \frac{5}{7} \div \frac{-2}{3}$

b) $\frac{-2}{3} \times \frac{5}{7} = \frac{5}{7} \times \frac{-2}{3}$

c) $\frac{-2}{3} \div \frac{5}{7} = \frac{5}{7} \times \frac{-2}{3}$

d) $\frac{-2}{3} \div \frac{5}{7} = \frac{5}{7} \div \frac{-2}{3}$

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5) The product of any rational number and 1 is the _____ itself.

Thus, $\frac{a}{b} \times 1 = 1 \times \frac{a}{b} = \frac{a}{b}$.

6) The **multiplicative identity** for every rational number is _____

7) $\frac{-9}{17} \times 1$ = -------- a) $1 \times \frac{-9}{17}$ b) $\frac{-9}{17}$ c) $\frac{17}{-9}$ d) both a and b

8) **Zero property of multiplication**: The product of any rational number and **0** is the _____ . Thus, $\frac{a}{b} \times 0 = 0 \times \frac{a}{b} = 0$.

9) $\frac{3}{5} \times 0$ = -------- a) $0 \times \frac{3}{5}$ b) $\frac{3}{5}$ c) 0 d) both a and c

10) Verify: $\frac{1}{3}, \frac{2}{7}$ follows the commutative property of **multiplication**

$\frac{1}{3} \times \frac{2}{7} = \frac{1 \quad 2}{3 \times 7}$	$\frac{2}{7} \times \frac{1}{3} = \frac{2 \quad 1}{7 \times 3}$
Product = $\frac{\quad}{21}$	Product = $\frac{\quad}{21}$

commutative property of multiplication is verified _____