



Properties of Rational Numbers

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

2) If $a = \frac{3}{4}$ and $b = \frac{5}{6}$, then which of the following is **true** for the **commutative property**?

a) $a + b = b - a$

c) $a + b = b + a$

b) $a + b = b - a$

d) $a - b = b - a$

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

a) Addition b) Subtraction c) both a and b

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

a) $\frac{2}{3} + \frac{3}{4} = \frac{3}{4} + \frac{2}{3}$

b) $\frac{2}{3} - \frac{3}{4} = \frac{3}{4} - \frac{2}{3}$

c) $\frac{2}{3} + \frac{3}{4} = \frac{3}{4} - \frac{2}{3}$

d) $\frac{2}{3} - \frac{3}{4} = \frac{3}{4} + \frac{2}{3}$



Thus, $\frac{a}{b} + 0 = 0 + \frac{a}{b} = \frac{a}{b}$.

7) $\frac{13}{11} + 0 = \text{-----}$ a) $0 + \frac{13}{11}$ b) $\frac{13}{11}$ c) $\frac{11}{13}$ d) both a and b

$$a) \frac{4}{7} + \frac{1}{7} = -\frac{1}{8}$$

$$b) \quad \frac{7}{15} + \frac{2}{9} = \frac{2}{9} + \frac{7}{15} \quad 0$$

c) $\frac{-1}{8} + 0$ *commutative property*

d) *Additive identity* $\frac{1}{7} + \frac{4}{7}$

a) $\frac{3}{5} + \frac{1}{7} = \frac{3}{5} - \frac{1}{7}$ a) yes b) no

6) $\frac{-13}{5} + \frac{2}{7} = \frac{2}{7} + \frac{-13}{5}$ a) yes b) no

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

$\frac{1}{3} + \frac{2}{7} = \frac{7(1)}{3 \times 7} + \frac{3(2)}{7 \times 3}$	$\frac{2}{7} + \frac{1}{3} = \frac{3(2)}{7 \times 3} + \frac{7(1)}{3 \times 7}$
$Sum = \frac{(7 + 6)}{21} = \text{-----}$	$Sum = \frac{(6 + 7)}{21} = \text{-----}$

commutative property of addition is verified _____