Properties of Division of Integers

- **Closure Property:** The closure property does not hold good for the division of integers.

  Examples: 15 ÷ 3 = 5 (5 is an integer)

  9 ÷ 4 = $\frac{9}{4}$ ($\frac{9}{4}$ is not an integer)

- **Commutative Property:** If a and b are two integers, then a ÷ b ≠ b ÷ a

  Example: 4 ÷ 2 = 2 but 2 ÷ 4 = $\frac{2}{4}$ or $\frac{1}{2}$

- **Associative Property:** If a, b, c are three integers, then (a ÷ b) ÷ c ≠ a ÷ (b ÷ c)

  Example: (24 ÷ 2) ÷ (-2) ≠ 24 ÷ [4 ÷ (-2)]

  Or 6 ÷ (-2) ≠ 24 ÷ (-2)

  Or (-3) ≠ (-12)

- **Property of 1:** Any integer divided by 1 gives the same integer as the quotient. If 'a' is an integer, then a ÷ 1 = a.

  Example: 5 ÷ 1 = 5

- **Property of Zero:** When zero is divided by any integer, the result is always zero. If a is an integer, then 0 ÷ a = 0

  Example: 0 ÷ 9 = 0