Rational Numbers

S.no	Type of Numbers	Description
1	Natural Numbers	N = {1,2,3,4,5…….} It is the counting numbers
2	Whole number	W= {0,1,2,3,4,5……..} It is the counting numbers + zero
3	Integers	Z={…-7,-6,-5,-4,-3,-2,-1,0,1,2,3,4,5,6…}
4	Positive integers	Z_+= {1,2,3,4,5……..}
5	Negative integers	Z_-={…-7,-6,-5,-4,-3,-2,-1}
6	Rational Number	A number is called rational if it can be expressed in the form p/q where p and q are integers (q> 0). Example: ½, 4/3 ,5/7 ,1 etc.

S.no	Terms	Descriptions
1	Additive Identity/Role of Zero	Zero is called the identity for the addition of rational numbers. It is the additive identity for integers and whole numbers as well a+0=a
2	Multiplicative identity/Role of one	1 is the multiplicative identity for rational numbers. It is the multiplicative identity for integers and whole numbers as well a×1=a
3	Reciprocal or	The multiplicative inverse of any rational number a/b is

multiplicative inverse	defined as b/a so that (a/b) x (b/a) =1 Zero does not have any reciprocal or multiplicative inverse

Properties of Rational Numbers

Closure Property

Numbers	**Closed Under**			
	addition	subtraction	multiplication	division
Rational numbers	Yes	Yes	Yes	No
Integers	Yes	Yes	Yes	No
Whole Numbers	Yes	No	Yes	No
Natural Numbers	Yes	No	Yes	No

Commutativity Property

Numbers	**Commutative Under**			
	addition	subtraction	multiplication	division
Rational numbers	Yes	No	Yes	No
Integers	Yes	No	Yes	No
Whole Numbers	Yes	No	Yes	No
Natural Numbers	Yes	No	Yes	No

Associativity Property

Numbers	**Associative Under**			
	addition	subtraction	multiplication	division
Rational numbers	Yes	No	Yes	No
Integers	Yes	No	Yes	No
Whole Numbers	Yes	No	Yes	No
Natural Numbers	Yes	No	Yes	No