



# Victoria University of Bangladesh

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**Course Title: Basic Algebra|**

**Course code : MAT 102**

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Ans: to: the: Q: NO: (1)

Prime numbers are numbers that have only 2 factors: 1 and themselves. For example, the first 5 prime numbers are 2, 3, 5, 7 and 11. By contrast, numbers with more than 2 factors are all composite numbers.

Ans: to: the: Q: NO: (2) (or)

Rational number in arithmetic, a number that can be represented as the quotient  $p/q$  of two integers such that  $q \neq 0$ . In addition to all the fractions, the set of rational numbers includes all the integers.

(2)

each of which can be written as a quotient with the integer as the numerator and 1 as the denominator. In decimal form, rational numbers are either terminating or repeating decimals. For example,  $\frac{1}{7} = 0.142857$  where the bar over 142857 indicates a pattern that repeats forever.

Ans: to the Q: NO: (3) or

A permutation is an arrangement of objects in a definite order. The members or elements of sets are arranged here in a sequence or linear order. For example,

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the permutation of set  $A = \{1, 6\}$  is 2, such as  $\{1, 6\}$ ,  $\{6, 1\}$ . As you can see, there are no other ways to arrange the elements of set  $A$ .

Ans: to: the: a: no: (4) or)

In maths, sets are a collection of well-defined objects or elements. A set is represented by a capital letter symbol and the number of elements in the finite set is represented as the cardinal number of a set in a curly bracket  $\{ \dots \}$ .

(4)

An element of a set is usually denoted by a small letter, such as  $x, y$ , or  $z$ . A set may be described by listing all of its elements enclosed in braces.

For example, if set  $A$  consists of the numbers 2, 4, 6 and 8 we may say:  $A = \{2, 4, 6, 8\}$

Ans: to: the: Q: No: (5) or)

A real number is any number that can be placed on a number line or expressed as an infinite decimal expansion. In other words, a real number is any rational or irrational number, including positive and negative

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whole numbers, integers, decimals, fractions and number such as pi ( $\pi$ ) and Euler's number ( $e$ )

In contrast, an imaginary number or complex number is not a real number. These numbers contain the number  $i$ , where  $i^2 = -1$ .

The set of real numbers includes several smaller (yet still infinite) subsets:

<u>Set</u>	<u>Definition</u>	<u>Examples</u>
Natural Numbers ( $N$ )	Counting number starting from 1 $N = \{1, 2, 3, 4, \dots\}$	1, 3, 157, 2021
Whole Numbers ( $W$ )	Zero and the Natural numbers $W = \{0, 1, 2, 3, \dots\}$	0, 1, 43, 811
Integers ( $Z$ )	The whole number and the negative of all the natural number. $Z = \{\dots, -1, 0, 1, \dots\}$	-44, -2, 0, 28

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Rational Numbers  
( $\mathbb{Q}$ )

Numbers that can be  
written as the fraction  
of integers  $p/q$ ,  $q \neq 0$   
where  $\mathbb{Q} = \{p/q\}$ ,  $q \neq 0$

$\frac{1}{3}, \frac{5}{4}, 0.8$

Irrational Numbers  
( $\text{Por } \mathbb{I}$ )

Real number which  
cannot be expressed  
as the fraction  
of integers  $p/q$ .

$\pi, e, \phi, \sqrt{2}$