

**Only students of Mr. Mansoor Khurshid's Section will solve this Assignment.**

**Assignment # 01**

**MTH100 (FALL 2025)**

**Due Date: 17 - 11 - 2025**

**Total Marks: 20**

**DON'T MISS THESE:** Important instructions before attempting the solution and submission of this assignment:

- **Lectures (01 - 08)** are encompassed in Assignment No.1.
- Only students in **Mr. Mansoor Khurshid 's Section** shall complete this Assignment.
- Students in other teacher's section will be completing a different assignment and are prohibited from solving this one.
- Submitting a copied assignment or irrelevant assignment will result in a zero grade.
- Assignment 1 is due on **Monday, Nov 17, 2025.**
- Properly Upload the solution of this assignment in **MS Word format** on LMS as per the previous practice.

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**Note: There are 4 questions in assignment. Please attempt all of them.**

**Question 01:**

**Marks = 5**

Let A be a set of all positive multiples of 1 and B be a set of all positive multiples of 3.

- (a) Check and give reason whether  $A$  is a subset of  $B$ , or not.
- (b)  $A \cap B$

**Question 02:**

Evaluate

**Marks = 5**

$$\left| \frac{5i}{3-i} \right|$$

**Question 03:**

**Marks = 5**

Determine domain and range of the function

$$f(x) = \frac{1}{x^2 - 4}$$

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**Question 04:**

**Marks = 5**

Let  $u(x) = 5x + 7$  and  $v(x) = 5x + 7$  be two functions. Find the composite functions  $(u \circ v)(x)$  and  $(v \circ u)(x)$ .