



Program: BS (AI)
Semester: Fall-2022
Course: MT1003- Calculus & Analytical Geometry

Examination: Assignment # 01
Total Marks: 10, Weightage: **02.5**
Date of Submission: 13-09-22

Note: Attempt all questions.

Q1. Solve the inequalities and show the solution sets on the real line:

(a) $3(2 - x) > 2(3 + x)$ (b) $-\frac{x+5}{2} \leq \frac{12+3x}{4}$

Q2. Express the solution sets as intervals or unions of intervals and show them on the real line:

(a) $4 < x^2$ (b) $4 < x^2 < 9$

Q3. It is estimated that the annual cost of driving a certain new car is given by the formula

$$C = 0.35m + 2200$$

where m represents the number of miles driven per year and C is the cost in dollars. Jane has purchased such a car and decides to budget between \$6400 and \$7100 for next year's driving costs. What is the corresponding range of miles that she can drive her new car?

Q4.(a) Solve the quadratic inequality $4x^2 + x + 1 > 0$

(b). Solve the absolute value inequality $|3x + 2| \geq 4$.

The End