**Mathematical Foundations**

**Instructions**

Please share your answers filled in-line in the word document. Submit code wherever applicable. Mathematical calculations which are manually performed should be uploaded with a picture along with the explanation in a word document.

Please ensure you update all the details:

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**Topic: Mathematical Foundations**

**Note: Submit pictures of mathematical calculations**

**Problem Statements**

Q1) Find the maximum and minimum values of the function: x^3 - 3x^2 - 9x + 12

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Q2) Calculate the slope and the equation of a line which passes through the points (-1, -1) (3, 8)

Q3) Solve for w’(z) when Text

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Diagram

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Q4) Consider Y(x)= 2x^3+6x^2+3x. Identify the critical values and verify if it is the maxima or minima.

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Q5) Determine the critical points and obtain relative minima or maxima of a function defined by



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