Worksheet 9

Graphing Using Calculus - Part III

Finding Relative Maxima, Minima, Points of Inflection, Increasing, Decreasing, and Concavity Using Calculus

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Let the universe be $U = \mathbb{R} \times \mathbb{R}$ (the plane).

For each write **D. N. E.** for does not exist if an answer does not exist and explain why it does not exist.

Exercise 9.1: Let $f : \mathbb{R} \longrightarrow \mathbb{R}$ be a well defined function such that $f(x) = x^6 - 9x^5 + 20x^4$.
Find all relative maxima or minima and find where f is increasing or decreasing.
Find the point(s) of inflection and find where f is concave up or concave down.
Find the absolute maxima or minima.
Graph f.

Exercise 9.2: Let $f : [-3, 2] \longrightarrow \mathbb{R}$ be a well defined function such that $f(x) = x^6 - 9x^5 + 20x^4$.
Find all relative maxima or minima and find where f is increasing or decreasing.
Find the point(s) of inflection and find where f is concave up or concave down.
Find the absolute maxima or minima.
Graph f.