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(4.1, 4.2, 4.3) – MATH 2211

Name _____ Row _____

From 4.1:

1.

2. Find the absolute max and min of $f(x) = 3x^4 - 4x^3 - 12x^2 + 1$ on $[-2, 3]$.

From 4.1/4.3

Use First Derivative Test & draw number line with intervals; test intervals and determine local extreme values:

2. Consider the function $f(t) = 12t - t^3$ on $-3 \leq t < \infty$

a. $f'(t) =$

b. Find the intervals on which the function is increasing and decreasing.

c. Identify the function's local extreme values, if any. Use the answer format "local max/min of # at $x = \#$ "

4.3 Find the intervals of concavity and the inflections points, if any.
(use 2nd derivative.)

3. $f(x) = 2x^3 + 3x^2 - 36x$

From 4.2: Mean Value Theorem $f'(c) = \frac{f(b) - f(a)}{b - a}$

Determine whether the Mean Value Theorem applies to the following functions on the given interval. If so, find the point(s) that are guaranteed to exist by the Mean Value Theorem.

4. $f(x) = 3x^2 + 2x + 5$ $[-1, 1]$



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