[1]

Instructions: Include all relevant work to get full credit. Write your solutions using proper notations. Encircle your final answers.

Quiz #13

1. Find c that satisfies the conclusion of the Mean Value Theorem for $f(x) = x^3 - 3x + 2$ on [-2, 2]. [3]

2. Consider the function $f(x) = x^4 - 4x^3$. Construct the first derivative chart that shows the critical values and where f'(x) is positive and negative. Also, include in this chart where the f(x) is increasing and decreasing. Then specify if there is any local maximum and/or local minimum points. [4]

3. Use the graph of the derivative (shown below) to answer the following questions:

a. What are the critical values?	[1]
b. For what values of x is $f(x)$ decreasing? Give your answer in interval notation.	[1]
c. At what value of x does $f(x)$ have a local maximum?	[1]