Math 131 - Quiz 9

Name _____

April 5, 2023

Score _____

Show all work to receive full credit. Supply explanations when necessary.

1. (3 points) Let $f(x) = \frac{1}{4}x^4 - \frac{1}{3}x^3 - 3x^2$ for $0 \leq x \leq 4$. Find all critical numbers of f.

2. (2 points) The function f is the same function as in problem #1:

$$f(x) = \frac{1}{4}x^4 - \frac{1}{3}x^3 - 3x^2 \text{ for } 0 \leq x \leq 4.$$

   Use calculus techniques to find the absolute maximum and minimum values of f on $[0, 4]$. (Do not repeat any of the work you did above.)

3. (5 points) Use calculus techniques to find open intervals on which $g(x) = x^5 - 10x^4 + 25x^3$ is increasing/decreasing. Also identify all relative extreme values.