

QUIZ 6 - MATH 112

Friday, March 14

YOUR NAME: _____

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Read each problem **very carefully** before starting to solve it and do only what is asked. Each problem is worth around 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. [6 points] Consider the function $f(x) = 2x^3 - 12x^2 + 18x$.

(a) Find its first derivative and the critical points.

(b) Find its second derivative and the critical points.

(c) Construct the combined sign table for first and second derivatives.

(d) Sketch the graph of $y = f(x)$ using the information in the last line of the table.

2. [4 points] Use the second derivative test to find the relative extrema of the function $f(x) = x^4 - 8x^2 + 7$. Show all steps.