QUIZ 5 - MATH 112   Friday, October 7

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

1. Find an equation for the tangent line to the graph of

$$f(x) = \sqrt{x^3 - 2} \quad \text{at} \quad x = 3.$$

2. In this problem we will study the graph of the function $f(x) = -x^3 + 3x^2 - 2$. To "**study the graph**" involves carrying out the following steps:

(a) Find the critical points of $f(x)$.

(b) Use the critical points to construct the sign table for the first derivative and to draw conclusions about the intervals of monotonicity and the relative (local) extrema of $f(x)$.

(c) Use the information gathered in Part (b) to sketch the graph of $y = f(x)$.