

QUIZ 3 - MATH 112

Thursday, February 15

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]

- (a) Find an equation for the tangent line to $f(x) = x^3 + \frac{1}{x^3}$ at $x = 1$. Please do not use decimals; only fractions (if needed).

- (b) Compute the derivative and simplify, if possible.

$$\left(\frac{x^2 + 7x - 5}{x^2 + 1}\right)' =$$

2. [6 points]

(a) Use two different ways to compute the derivative of $f(x) = x^3(x^7 + 11)$.

$$[x^3(x^7 + 11)]' =$$

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(b) A business has revenue function $R(x) = 3\sqrt[3]{x^7}$, where x is the number of items produced and sold. Find its marginal revenue at $x = 64$ and describe (compactly and to the point) how it should be interpreted.