QUIZ 5 - MATH 112 Friday, February 21

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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. [4 points] Use the product rule to compute the derivative of $f(x) = \left(\sqrt{x} - \frac{1}{\sqrt{x}}\right)(2x^2 + 5x)$.

2. [4 points] Find an equation for the tangent line to $f(x) = \dfrac{5x^3 - 3x + 1}{2x^2 + 1}$ at $x = 2$.

3. [4 points] Suppose the position function of a moving object is given by

$$s(t) = \sqrt{t^3} + 5\sqrt[3]{t^5}.$$

(a) Find the velocity of the object at $t = 64$ seconds.

(b) Find the acceleration of the object at $t = 1$ second.