QUIZ 6 - MATH 112 Friday, February 15

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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. Use the product rule to find an equation for the tangent line to the graph of $y = f(x)$ at $x = -1$, where
$$f(x) = 3\sqrt[3]{x^2}(x^3 + 7x).$$

2. A particle in a linear motion is positioned at $s(t) = \dfrac{5t}{t+1}$ meters from the origin at time t in seconds. Please attach units to all your answers.

   (a) Find the position of the particle at time $t = 4$ seconds.

   (b) Find the velocity of the particle at time $t = 4$ seconds.

   (c) Find the acceleration of the particle at time $t = 4$ seconds.
   (**Hint:** To compute the derivative of a power, like $[(7t + 5)^2]'$, we can expand and use the sum rule for now.)