

YOUR NAME: _____

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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 $f''(\frac{1}{3})$ if $f(x) = \frac{x}{3x+1}$.

2. Find an equation for the tangent line to $f(x) = 3x^2(2x+1)^5$ at $x = -1$.

3. A particle moving on a straight line covers distance $s(t) = \sqrt{t^4 + 3t^2}$ meters, where t is measured in seconds. Find the velocity of the particle at time $t = 1$ second.