

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. Use the limit definition of the derivative to compute the derivative of the function $f(x) = \frac{3}{x-5}$ at $x = 4$. Then find an equation for the tangent line to the graph of $y = f(x)$ at $x = 4$.

2. Compute the derivative of the function $f(x) = \frac{1}{\sqrt[4]{x^3}} + 5 \cos x$.

3. Find an equation for the tangent line to the graph of $f(x) = (x + 1) \cos x$ at the point $(0, 1)$.

4. Compute the derivative of the function $f(x) = \frac{1 + \sin x}{x + \cos x}$