

Applied Calculus – Quiz 9

1. Find the equation of the line tangent to the graph of $f(x) = \ln\left(\frac{2-x}{2x-1}\right)$ at the point $(1, 0)$.

2. Differentiate: $g(x) = \ln\sqrt{1+x^3} + (\ln 5x)^6$

3. Differentiate: $f(x) = \ln(e^{3x} + 4x) + \ln(\ln(5x))$

4. Compute $\int \left(\frac{6}{\sqrt[3]{x^2}} - \frac{e^{3x}}{5} \right) dx$

5. Compute $\int \frac{6x^5 - 4x^3 + x^2 - 4}{x^3} dx$

6. If $f'(x) = 6x^3 - x$ and $f(1) = 3$, find $f(x)$.