1. (4 points) Find the slope of the line tangent to the graph of the ellipse

$$\frac{x^2}{25} + \frac{y^2}{3} = 1$$

at the point \( \left( \frac{5}{2}, \frac{3}{2} \right) \).
2. (2 points) Compute $g'(t)$ given that $g(t) = \sin^{-1}(5t)$.

3. (4 points) Compute $\frac{dy}{dx}$ given that $\ln(x^2y^3) = x^3 + y^5$. 