Problem 1

Consider the equation $x^2 + y^2 = 4$ (a circle of radius 2). Find $\frac{dy}{dx}$.

Problem 2

If $x^3 - y^3 + 3x\sin(y) = y$, find $\frac{dy}{dx}$.

Problem 3

Recall the folium of Descartes: $x^3 + y^3 - 9xy = 0$ give the equations of the normal and tangent line at the point $(4, 2)$. Note: In class I committed the **sin** of not simplifying $\frac{12}{15}$ to $\frac{5}{4}$. Forgive me.