Problem 1

Find $\dfrac{d}{dx}\left(\sin(\sqrt{x^2+1})\right)$

Problem 2

Find $\dfrac{d}{dx}\left(\sin(x^2)\tan(x^3)\right)$

Problem 3

Let $y = 10\sin(\sqrt{1+\sqrt{t}})$. Find $\frac{dy}{dt}$.

Problem 4

Let $f(x) = \dfrac{\sin(x^2)+10x^2}{\sec(10x)}$. Find $f'(x)$.

Problem 5

Give the equation of the tangent line of $y = \sin(x^2)$ at $x = \sqrt{\frac{\pi}{4}}$.