1. Find $f'(x)$ when $f(x) = \sqrt{2 + \sin x}$.

2. Determine whether $F(x) = \cos(2x^3)$ is an antiderivative of $f(x) = x^2 \sin(2x^3)$.

3. The equation $x^5 + xy^3 + x^2y + y^5 = 32$ implicitly defines a curve. What is the slope of this curve at the point $(0,2)$?