Reading Quiz #4

姓名：_____ 系級：_____學號：_____ 分數：_____

Read Sections 3.5-3.7 (pages 169-189) and do the following.

1. Find the points on the curve $y = \dfrac{\cos x}{2 + \sin x}$ at which the tangent is horizontal.

2. (a) Write $|x| = \sqrt{x^2}$ and use the chain rule to show that $\dfrac{d}{dx}|x| = \dfrac{x}{|x|}$.

   (b) If $f(x) = |\sin x|$, find $f'(x)$ and sketch the graphs of f and f'. Where is f not differentiable?

   (c) If $g(x) = \sin|x|$, find $g'(x)$ and sketch the graphs of g and g'. Where is g not differentiable?

3. Use implicit differentiation to find an equation of the tangent line to the devil's curve $y^2(y^2 - 4) = x^2(x^2 - 5)$ at the point $(0, -2)$.