## Part I (due at the beginning of class Tuesday, October 28)

Use the limit definition of the derivative to find the derivatives of $\sin x$ and $\cos x$. You may find these trig identities useful:

$$\sin(a + b) = \sin a \cos b + \cos a \sin b$$
$$\cos(a + b) = \cos a \cos b - \sin a \sin b$$

## Part II: Problems (due at the beginning of class Tuesday, October 28)

1. The Product Rule is a rule for finding the derivative of a product of two functions. Using the standard Product Rule, prove a Triple Product Rule that tells you how to differentiate a product of three functions, e.g., $f(x)g(x)h(x)$. Illustrate your rule with two examples.