Math 181 Honors Quiz 7 Version A

1. Let $f(x) = 1/x$. Use the limit definition of derivative to show that $f'(x) = -1/x^2$.

2. State from memory the following derivatives:

$\frac{d}{dx}x^2 =$ $\qquad$ $\frac{d}{dx}\sqrt{x} =$ $\qquad$ $\frac{d}{dx}e^x =$

$\frac{d}{dx}\sin x =$ $\qquad$ $\frac{d}{dx}\cos x =$ $\qquad$ $\frac{d}{dx}\log x =$

3. Prove one of the following:

(i) If $f(x)$ is differentiable at c, then $f(x)$ is continuous at c.

(ii) Suppose $f(x)$ and $g(x)$ are differentiable. If $w(x) = (f \circ g)(x) = f(g(x))$, then $w'(x) = f'(x)g(x) + f(x)g'(x)$.