This quiz is closed-books and closed-notes. No calculators or cellphones are allowed. There are 5 problems, all together worth 10 points.

**Problem 1** (2 points). Find $\left(\frac{e^x}{1+x^2}\right)'$

**Problem 2** (2 points). Find $(e^{cx}(\sin x - \cos x))'$, where $c$ is a constant.

**Problem 3** (2 points). Find $(\tan x)' = \left(\frac{\sin x}{\cos x}\right)'$. Simplify the answer by using $\sin^2 x + \cos^2 x = 1$.

**Problem 4** (2 points). Find $\left(\tan\left(\ln\left(1+x^3\right)\right)\right)'$

**Problem 5** (2 points). Differentiate implicitly with respect to $x$

$$y \sin x + x \cos y = 1$$

and show that the slope of the tangent line at the point $(1,0)$ is $-1/\sin 1$.