Name: **Tutorial time:**

1. Compute the derivatives of the following functions:

[2]   (a) $f(x) = e^x \cos(x)$

[2]   (b) $g(x) = \dfrac{\sin(x)}{x^2 + 1}$

[2]   (c) $h(x) = \tan^3(x)$

[2]   (d) $r(x) = (x^2 + 1)^x$

[3]   2. Compute the derivative of $f(x) = \ln\left(\sqrt[3]{\dfrac{x^2(x-3)^3}{(x^4+4x)(2x-1)^4}}\right)$.

(Hint: there is an easy way and a hard way.)

[3]   3. Find the equation of the tangent line to the curve $(x^2+y^2)^2 = 4xy$ at the point $(1,1)$.

(Suggestion: use implicit differentiation.)

[1]   4. Write down an example of a function that is continuous everywhere, but not differentiable everywhere. (Just give the funciton. You don't have to show that it's a valid example.)