Worksheet 8

Name: _____

1. Using the technique of log differentiation, compute the following derivatives.

   (a) x^{4x}

   (d) $\cos(x)^x$

   (b) $\dfrac{4x - 1}{\sin(x)}$

   (e) $(\sqrt{x})^x$

   (c) $x^{\cos(x)}$

   (f) $(2x + 5)^{10}(x^4 - 3)^6$

2. Use implicit differentiation (along with logarithmic differentiation) to find y', given the equation $x^y = y^x$.

3. Find the equation of the tangent line to the function $\tan(x)^x$ at $x = 3$.