Instructions. Put the first and last name of everyone in your workgroup at the top of your paper. Everyone is to do their own worksheet but only one from each group is graded with the score shared. Be sure to show your work and explain your reasoning.

1. Find $\frac{dy}{dx}$.
   (a) $xe^y = x - y$
   (b) $e^y \sin x = x + xy$

2. Find an equation of the tangent line to $x^2 + 2xy - y^2 + x = 2$ at $(1,2)$.

3. Compute the derivatives.
   (a) $y = (\sin^{-1} x)^2$
   (b) $y = \tan^{-1} x \sec^{-1} x$
   (c) $y = e^x \cos^{-1} x$

4. Determine $y''$ at the point where $x = 0$ if $xy + e^y = e$. 