Please work in groups with no more than four people and complete this worksheet during class. Hand in one worksheet for each group.

1. Differentiate:
   
   (a) \[ y = \frac{\sin x}{1 + \cos x} \]

   (b) \[ y = \sin^{-1} x \]

   (c) \[ y = \cos(x^2 + 9) \]
(d) \( y = \tan^3(9x + 1) \)

(e) \( y = \frac{\sin mx}{x} \).

(f) \( y = x \tan^{-1} \sqrt{x} \).

(g) \( y = \tan^{-1} (\sin^{-1} \sqrt{x}) \).
2. Find $y'$:

(a) $x^2 + xy + y^2 = 1.$

(b) $x \tan y = y - 1.$

(c) $xe^y = y - 1.$
3. \( f(x) = 3x^4 - 2x^3 + x^2 - 4x + 2 \) find \( f^{(5)}(x) \).

4. Find \( y'' \) if \( x^2 + xy + y^2 = 1 \).