You are encouraged to work in groups of two to four on this assignment and make a single group submission. Each problem is worth 5 points. For full credit indicate clearly how you reached your answer. All work must be legible and submitted on clean paper without ragged edges.

1. a) Evaluate \( \lim_{{h \to 0}} \frac{\cos h - 1}{h} \) by using successively smaller values for \( h \).

   b) Use the definition of the derivative to show that \((\cos x)' = \sin x\).

2. Define two new functions \( \cosh x \) and \( \sinh x \) by \( \cosh x = \frac{e^x + e^{-x}}{2} \) and \( \sinh x = \frac{e^x - e^{-x}}{2} \).

   a) Show that \((\sinh x)' = \cosh x\).

   b) Show that \((\cosh x)' = \sinh x\).

3. Do problem #79 in §3.5.

4. Do problem #66 in §3.6.