

Problem Set 1 Calculus 1 Due 2/24/06

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 $\lim_{h \rightarrow 0} \frac{\cos h - 1}{h}$ 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.