Math 165: Honors Calculus I Name:⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

Quiz 6 *October 14, 1999*

(1) Use the addition formula for $\cos(x)$ to prove
$$\sin^2(x) = \frac{1 - \cos(2x)}{2} \quad \text{and} \quad \cos^2(x) = \frac{1 + \cos(2x)}{2}$$

(2) Give a mathematically precise definition for $\lim_{x \to p} f(x) = A$.

(3) Let $f(t) = (-1)^{[t]}$ where $[t]$ is the greatest integer less than or equal to t. Calculate $F(x) = \int_0^x f(t)\, dt$ for $0 \leq x \leq 4$ and plot its graph.