Problems. February 3.

1. Approximate the value of the integral with an error of magnitude less than 0.001.
$$\int_0^1 \frac{1-\cos x}{x^2} dx.$$

2. Use series to evaluate the limit
$$\lim_{x\to 0} \frac{e^{2x} - (1 + 2x + 2x^2 + 2x^3)}{\sin x^3}.$$

3. Plot the following points given in polar coordinates. Then find their Cartesian coordinates. a) $(\sqrt{2}, -\pi/4)$, b) $(-1, \pi/3)$, c) $(2, \pi)$, d) $(4, 7\pi/6)$.

4. The following points are given in Cartesian coordinates. Find their polar coordinates. a) $(0, -1)$, b) $(-3, 3)$, c) $(2, -2\sqrt{3})$, d) $(\sqrt{3}, \sqrt{3})$.