Math 111.17 Fall 2002
Quiz #6   Name:_____

You have 15 minutes to complete this quiz which is worth 15 points. Calculators are permitted, but no other aids are allowed. Show all work neatly and in order, and clearly indicate your final answers. Answers must be justified whenever possible in order to earn full credit.

1. (*8 points*) Determine the linearization of $f(x) = \cos x$ at $\pi/4$. Use this to approximate the value of $\cos((\pi + 1)/4)$. Is your approximation an overestimate or underestimate of the true value of $\cos((\pi + 1)/4)$?

2. (*7 points*) A spherical balloon is being inflated at a rate of 30 cm^3/min. How fast is the radius of the balloon changing when the radius is 2 cm?