Math 262
Quiz 3 **Name:**_____

Instructions: This take-home quiz is due by 4:00pm on Tuesday. The points that you earn on this quiz will count as a quiz grade, but will also be added to your total on Exam 5. The work submitted on this quiz must be your own.

1. (5 points) Use a series to approximate $\int_0^1 x^2 e^{-x^2}\,dx$ to three decimal places of accuracy.

2. (5 points) Consider the polar functions given by $r = 4\cos(2\theta)$ and $r = 2$. Find the area of the region *inside* $r = 4\cos(2\theta)$ and *outside* $r = 2$. [you may use any obvious symmetry to make setting up the integral more convenient]