Homework Assignment #3
Due Tuesday, January 30, 2007

1. Evaluate each integral below (there is no partial credit on these - each one is right or wrong). Show all your work.
   (a) $\int \sec^2 \left( \frac{t}{4} \right) \, dt$
   (b) $\int \tan^{-1} \left( \frac{x}{1+x^2} \right) \, dx$
   (c) $\int_0^\pi 2y \cos y \, dy$
   (d) $\int x \sin(3x) \, dx$
   (e) $\int x^2 e^x \, dx$

2. Calculate each of the following integrals. There are several steps to each problem. You have to use both substitution and integration-by-parts in each problem. Show all your work.
   (a) $\int x^3 \cos(x^2) \, du$
   (b) $\int_0^\pi \cos \sqrt{x} \, dx$

3. Use partial fractions to calculate each integral below. Show all your work.
   (a) $\int \frac{1}{4-x^2} \, dx$
   (b) $\int \frac{x^2+2x-1}{x^2-x} \, dx$

Practice Problems

Do not turn these in.

Section 5.5, # 3, 5, 7, 11, 13, 17, 21, 33, 41, 47, 59, 63

Section 5.6, # 1, 3, 5, 7, 9, 11, 19, 21, 25, 27, 41, 43

Section 5.7, # 15, 17, 19, 21, 23, 25, 27, 29