

Name \_\_\_\_\_

Do the following problems by hand showing all necessary work and using proper notation for each step in your work. You may use Maple or a calculator only to check your work or do simple arithmetic.

1. (6 points) Evaluate the following integrals.

(a)  $\int_2^{\infty} 5xe^{-x} dx$

(b)  $\int_1^4 \frac{dx}{(x-1)^{3/2}}$

(c)  $\int_{-2}^0 \frac{-1}{(x+2)^2} dx$

2. (4 points) The region between the  $x$ -axis and the curve  $y = e^{-x}$  on the interval  $[0, \infty)$  is revolved around the  $x$ -axis. Compute the resulting volume.