## **Review Problems**

January 13, 2017

- 1. (Fall 2004, Exam 1, #6) The integral for the volume of the solid generated by revolving the region bounded by the curves  $y = x^2$ , y = 0, and x = 1about the line x = 1 is:
  - (a)  $\int_0^1 \pi (2x^3 2x^4) dx$ (b)  $\int_0^1 \pi (2x^4 - 2x^2) dx$ (c)  $\int_0^1 \pi (2x^3 - 2x^2) dx$ (d)  $\int_0^1 \pi (2x^2 - 2x^3) dx$ (e)  $\int_0^1 \pi (x^2 - x^3) dx$
- 2. Take the region bounded by the curves  $y = x^2$ ,  $y = 2 x^2$ , and x = 0, and rotate it about the y-axis. Find the volume of the solid generated.
- 3. (Fall 2007, Exam 1, #8) Take the region bounded by the curves  $y = \sqrt{x}$  and y = x and rotate it about the x-axis. Find the volume of the solid generated.
- 4. (Fall 2007, Exam 1, #9) Take the region bounded by  $y = x^2$  and y = x and rotate it about the line x = 1. using the method of cylindrical shells, the volume of the solid generated is given by what integral?