Math 16C
Vogler
Worksheet 8

1.) Evaluate the following double integrals. Realize that in some cases you must switch the order of integration before you compute the antiderivatives.

a.) $\int_0^{\pi/4} \int_0^{\pi} \sec^2(x/3 + y/4)\, dy\, dx$

b.) $\int_0^{2\pi} \int_0^{3\pi} \cos(x/3 - y/2)\, dy\, dx$

c.) $\int_0^{\pi/2} \int_0^{\pi/6} \sin^2(x - y)\, dy\, dx$

d.) $\int_1^{5} \int_0^{3/\sqrt{x}} 2xy \cdot \tan^2(xy^2)\, dy\, dx$

e.) $\int_0^{4} \int_{\sqrt{y}}^{2} y \cdot \cos(x^5)\, dx\, dy$

f.) $\int_0^{1} \int_{\ln(x+1)}^{\ln 2} \frac{2x}{e^{2y} - 2e^y + 1}\, dy\, dx$

2.) Sketch the volume of the solid which is represented by each of the following double integrals. You need not compute the value of the double integral.

a.) $\int_0^{3} \int_0^{3-x} 1/3(12 - x - 2y)\, dy\, dx$

b.) $\int_0^{2} \int_0^{y/2} (x^2 + y^2)\, dx\, dy$