Name _____

Homework 11
Section 16.4

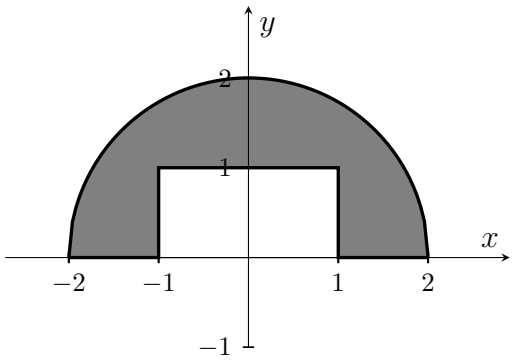
1. (2ea) Sketch the region of integration for the following integrals.

   (a) $\int_1^4 \int_{\pi/6}^{3\pi/4} (r^2+1)r \; d\theta dr$

   (b) $\int_0^{\pi/4} \int_{\frac{1}{\cos\theta}}^{3} \sin\theta \; r dr d\theta$

2. (5) Determine the integral of the function $f(x,y) = \sqrt{3x^2+3y^2}$ over the region defined by $1 \leq x^2+y^2 \leq 4$.

3. (6) Compute $\int_R 30x^2y\,dA$ where R is the shaded region shown below.



4. (5) Evaluate $\displaystyle\int_{-2\sqrt{2}}^{2\sqrt{2}} \int_{|x|}^{\sqrt{16-x^2}} \frac{x^2}{x^2+y^2}\, dydx.$