Homework 8, Graded Problems.

1. If $R$ is the rectangle $[-4,4] \times [-4,4]$ and $f$ is the function whose contour plot is given below, approximate

$$\iint_R f(x,y) \, dA$$

You are free to chose any methods and any grid size. However, you will be graded on both your accuracy and the degree of common sense displayed in your choices.

NOTE: Assume left to right symmetry for contour heights.
2. If $R$ is the rectangle $[-4, 4] \times [-4, 4]$, evaluate

$$\int \int_R \frac{3\sqrt{3}}{64} (2x^2 - y^3 - 16y) \, dA$$

3. If $R$ is the triangular region with corners $(0, 0)$, $(0, 2)$ and $(4, 2)$, evaluate

$$\int \int_R e^{y^2} \, dA$$

4. Find the volume of the solid in the first octant bounded by the cylinder $x^2 + y^2 = 4$ and the planes $x = 0$, $y = 0$, $z = 0$ and $y + z = 2$. 