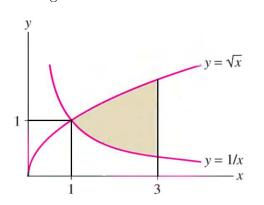Read each problem **very carefully** before starting to solve it. Each problem is worth 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. Compute the integral $\iint_D x^2 y \, dA$, where D is the region of the plane that is shaded is the figure below.

2. Compute the integral $\int_0^4 \int_{x/2}^2 e^{y^2} \, dy \, dx$