Exercise 1. Let R be the region consisting of the points (x, y) in the cartesian plane satisfying both $|x| - |y| \leq 1$ and $|y| \leq 1$. Sketch the region R and find its area. [Putnam 1988, A1]

Exercise 2. Evaluate $\displaystyle\int_0^a \int_0^b e^{\max\{b^2 x^2, a^2 y^2\}} \, dy \, dx$, where $a, b > 0$. [Putnam 1989, A2]