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1. Evaluate the integral  $\int_D \int (x^2 + 2y) dA$ , over the region  $D$  where  $D$  is bounded by  $y = x$  and  $y = x^2$

2. Evaluate the following integrals.

(a)  $\int_0^1 \int_0^2 2ye^{x+y^2} dx dy$

(b)  $\int_R \int \frac{\ln x}{e^y} dA$  where  $R = [1, 2] \times [0, 1]$