1. Evaluate the following integral.

$$\int\int_G (x^2 + y^4) \ dx \ dy$$

where G is the region bounded by $y = x$, $y = x^3$.

2. Evaluate the following integral.

$$\int_0^1 \int_0^1 x^2 + sin(y) \ dx \ dy$$

3. Evaluate the following integral.

$$\int_0^1 \int_0^x x^2 + sin(y) \ dy \ dx$$