Math 2551 A1-3 Midterm 3 (for practice)

Section:
Name:
Student ID:

(1) Sketch the region of integration, reverse the order of integration, and evaluate the integral.

$$\int_0^{1/16} \int_{y^{1/4}}^{1/2} \cos(16\pi x^5) dx dy$$

(2) Find the average distance from a point (x, y) in the disk $x^2 + y^2 \leq a^2$ to the origin.

(3) Evaluate the following integral by changing the order of integration in an appropriate way.

$$\int_0^1 \int_0^1 \int_{x^2}^1 12xze^{zy^2} dydxdz$$

(4) Evaluate $\int_C xydx + (x+y)dy$ along the curve $y = x^2$ from $(-1, 1)$ to $(2, 4)$.