MATH 202: VECTOR CALCULUS
MONDAY WEEK 8 HANDOUT

For each of the following compact sets and integrals, complete the following tasks:

(a) Sketch the set, making sure to label your axes.

(b) Set up two different iterated integrals which compute the integral.

(c) Evaluate one of your iterated integrals.

$$K = \{(x,y) \in \mathbb{R}^2 \mid 1 \leq y \leq 2,\ y \leq x \leq y^3\}, \quad \int_K e^{x/y}$$

$$L = \{(x,y) \in \mathbb{R}^2 \mid x^3 \leq y \leq \sqrt{x}\}, \quad \int_L (4xy - y^3)$$

$$M = \text{the interior of the triangle with vertices } (0,3),\ (1,1),\ (5,3), \quad \int_M (6x^2 - 40y)$$

$$N = \{(x,y,z) \in \mathbb{R}^3 \mid x, y, z \geq 0,\ x + y + z \leq 2\}, \quad \int_N (x + 2y)$$