

Math for Deep Learning - Homework 02

Name: _____

1. Compute the following integrals

(a) $\iint x^2 y dA$ over the region inside the rectangle $3 \leq x \leq 4$ and $0 \leq y \leq 2$.

(b) $\iint (x^2 + y^2) dA$ over the region inside the rectangle $0 \leq x \leq 4$ and $0 \leq y \leq 2$ where $y > x$.

(c) $\iint (x - 2y) dA$ over the region defined as above $y = x$ below $y = 4 - x^2$.

2. Compute the following integral using an appropriate change of basis.
 $\iint e^{y-x} \cos(2x + y) dA$ over the region defined as inside the four lines $y = x$, $y = x + 2$, $y = -2x$ and $y = 4 - 2x$.