

Name:

1. Use a Riemann sum to estimate the value of $\iint_R (1 - xy^2) dA$ where $R = [0, 4] \times [-1, 2]$ with $m = 2, n = 3$. Take the sample points to be the upper left corners of the rectangles.

2. Calculate the iterated integral

$$\int_{-1}^2 \int_0^4 (1 - xy^2) dx dy.$$

3. Express the following regions D as a region of type I and also as a region of type II. Then evaluate the double integral in two ways.

(a) $\iint_D x dA$, where D is bounded by $y = x, y = 0, x = 1$.

(b) $\iint_D xy dA$, where D is enclosed by the curves $y = x^2, y = 3x$.