

Worksheet

Tuesday, February 23, 2021 9:53 AM

$$\textcircled{a} \quad \iint_D (x+1) \, dA, \quad D = \{(x,y) : |x| \leq 1, 0 \leq y \leq 2\}$$

$$\begin{array}{l} \because |x| \leq 1 \\ \underline{\underline{-1 \leq x \leq 1}} \end{array} \quad \left| \quad 0 \leq y \leq 2 \right.$$

$$V = \int_{y=0}^{y=2} \int_{x=-1}^{x=1} (x+1) \, dx \, dy$$

dy dx.

$$= \int_{y=0}^{y=2} \left[\frac{x^2}{2} + x \right]_{-1}^1 \, dy$$

$$= \int_{y=0}^{y=2} \left(\frac{1}{2} + 1 - \left(\frac{1}{2} - 1 \right) \right) \, dy$$

$$= \int_0^2 2 \, dy$$

$$= [2y]_0^2$$

$$= 4 - 0 = 4$$

$$\textcircled{b} \quad \int_0^1 \int_0^1 (2x-y)^2 \, dx \, dy$$