

Multiple Integration

Double Integrals

Question

Evaluate the following double integral by inspection.

$$\iint_T (1 - x - y) dA,$$

where T is the triangle with vertices $(0,0)$, $(1,0)$ and $(0,1)$.

Answer

$$\begin{aligned} \iint_T (1 - x - y) dA \\ &= \text{volume of tetrahedron} \\ &= \frac{1}{3} \left(\frac{1}{2}(1)(1) \right) (1) = \frac{1}{6} \end{aligned}$$

