

Multiple Integration

Double Integrals

Question

Evaluate the following double integral by inspection.

$$\iint_{x^2+y^2 \leq a^2} (a - \sqrt{x^2 + y^2}) \, dA$$

Answer

$$\begin{aligned} & \iint_{x^2+y^2 \leq a^2} (a - \sqrt{x^2 + y^2}) \, dA \\ &= \text{volume of cone} \\ &= \frac{1}{3}\pi a^3 \end{aligned}$$

