

**Multiple Integration**  
*Double Integrals*

**Question**

Evaluate the following double integral by inspection.

$$\iint_{x^2+y^2 \leq 1} (4x^2y^3 - x + 5) dA$$

**Answer**

$$\begin{aligned} & \iint_{x^2+y^2 \leq 1} (4x^2y^3 - x + 5) dA \\ &= 0 - 0 + 5(\text{area of disk}) \quad (\text{rmbly symmetry}) \\ &= -\pi \times 4 \times \frac{1}{2}(1)(1) = -2\pi \end{aligned}$$

