

Evaluate the following integrals.

1. $\iiint_Q e^z dV$ where Q is the region inside $x^2 + y^2 = 9$ between $z = x^2 + y^2$ and $z = 0$

2. $\iiint_Q \sqrt{x^2 + y^2} e^z dV$ where Q is the region inside $x^2 + y^2 = 1$ between $z = (x^2 + y^2)^{\frac{3}{2}}$ and $z = 0$

3. $\iiint_Q z dV$ where Q is the region under $z = x^2 + y^2$ and above the four-leaf clover $r = \cos(2\theta)$ (the clover lies in \mathbb{R}^2).