

In cylindrical coordinates E is bounded by the paraboloid $z = 9 + r^2$, the cylinder $r^2 = 9$ or $r = 3$, and the xy -plane, so E is given by $\{(r, \theta, z) \mid 0 \leq \theta \leq 2\pi, 0 \leq r \leq 3, 0 \leq z \leq 9 + r^2\}$.

Thus

$$\begin{aligned} \iiint_E e^z dV &= \int_0^{2\pi} \int_0^3 \int_0^{9+r^2} e^z r dz dr d\theta = \int_0^{2\pi} \int_0^3 r [e^z]_{z=0}^{z=9+r^2} dr d\theta = \int_0^{2\pi} \int_0^3 r(e^{9+r^2} - 1) dr d\theta \\ &= \int_0^{2\pi} d\theta \int_0^3 (re^{9+r^2} - r) dr = 2\pi \left[\frac{1}{2}e^{9+r^2} - \frac{1}{2}r^2 \right]_0^3 = \pi(e^{18} - e^9 - 9) \end{aligned}$$