

Evaluate.

1. $\int \int \int_{\mathcal{B}} z dV$ where \mathcal{B} is the region in the first octant bounded below by $z = 0$, and above by $z = 10 + y$ and lies between $x^2 + y^2 = 1$ and $x^2 + y^2 = 4$.

2. $\int \int \int_{\mathcal{B}} x e^{x^2+y^2+z^2} dV$ where \mathcal{B} is in the first octant bounded by the ball $x^2 + y^2 + z^2 = 16$.