

1. Set up and evaluate $\iint_R f(x, y) \, dA$ using polar coordinates where $f(x, y) = 4x - y + 7$ and R is the region enclosed by the circle $x^2 + y^2 = 1$
2. Find the volume of the solid that lies under the surface $f(x, y) = e^{\frac{-x^2 - y^2}{2}}$ and above the circle of radius k in the xy -plane that is centered at the origin.