In cylindrical coordinates, E is given by
$\{(r, \theta, z) \mid 0 \le \theta \le 2\pi, 0 \le r \le 2, -6 \le z \le -5\}$. So

$\iiint_E \sqrt{x^2 + y^2} \, dV \quad = \int_0^{2\pi} \int_0^2 \int_{-6}^{-5} \sqrt{r^2} \, r \, dz \, dr \, d\theta = \int_0^{2\pi} d\theta \int_0^2 r^2 \, dr \int_{-6}^{-5} dz$

$= \left[\theta \right]_0^{2\pi} \left[\frac{1}{3} r^3 \right]_0^2 \left[z \right]_{-6}^{-5} = (2\pi)\left(\frac{8}{3}\right)(1) = \frac{16}{3}\pi$