

- ① Convert $(x, y, z) = (3, -4, 2)$ to spherical coordinates (ρ, φ, θ) .
- ② Convert $(r, \theta, z) = (5, -\pi/6, 4)$ to spherical coordinates.
- ③ Describe the surface $\{(x, y, z) : \rho = 5\}$.
- ④ Convert $(\rho, \varphi, \theta) = (11, 5\pi/6, -\pi/2)$ to Cartesian coordinates (x, y, z) .
- ⑤ Convert $(\rho, \varphi, \theta) = (7, \pi/3, \pi/4)$ to cylindrical coordinates (r, θ, z) .
- ⑥ Describe the solid region $\{(x, y, z) : \rho \leq 3 \text{ \& } 0 \leq \theta \leq \pi/2 \text{ \& } 0 \leq \varphi \leq \pi/2\}$.