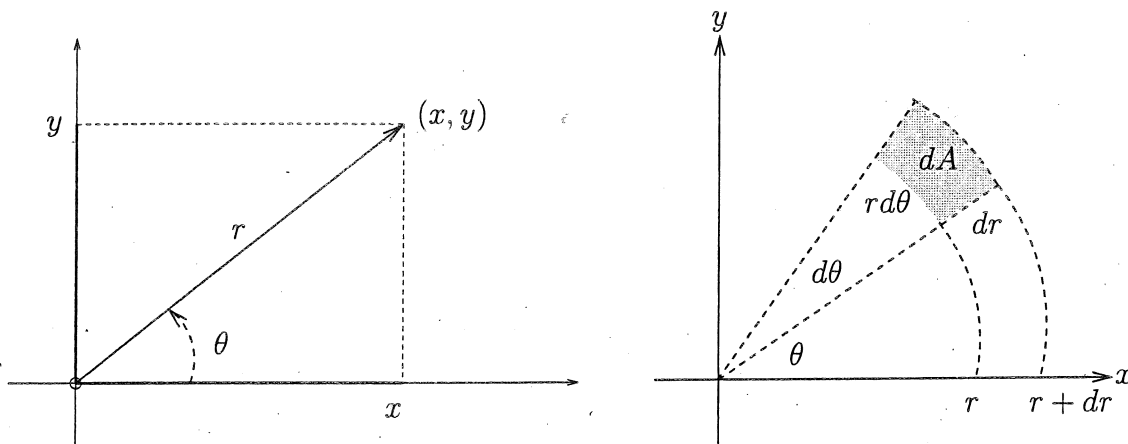


Coordinate Systems

Polar coordinates

$$x = r \cos \theta, \quad y = r \sin \theta, \quad \text{and} \quad dA = r dr d\theta$$



Cylindrical coordinates

$$x = r \cos \theta, \quad y = r \sin \theta, \quad z = z, \quad \text{and} \quad dV = r dr d\theta dz$$

