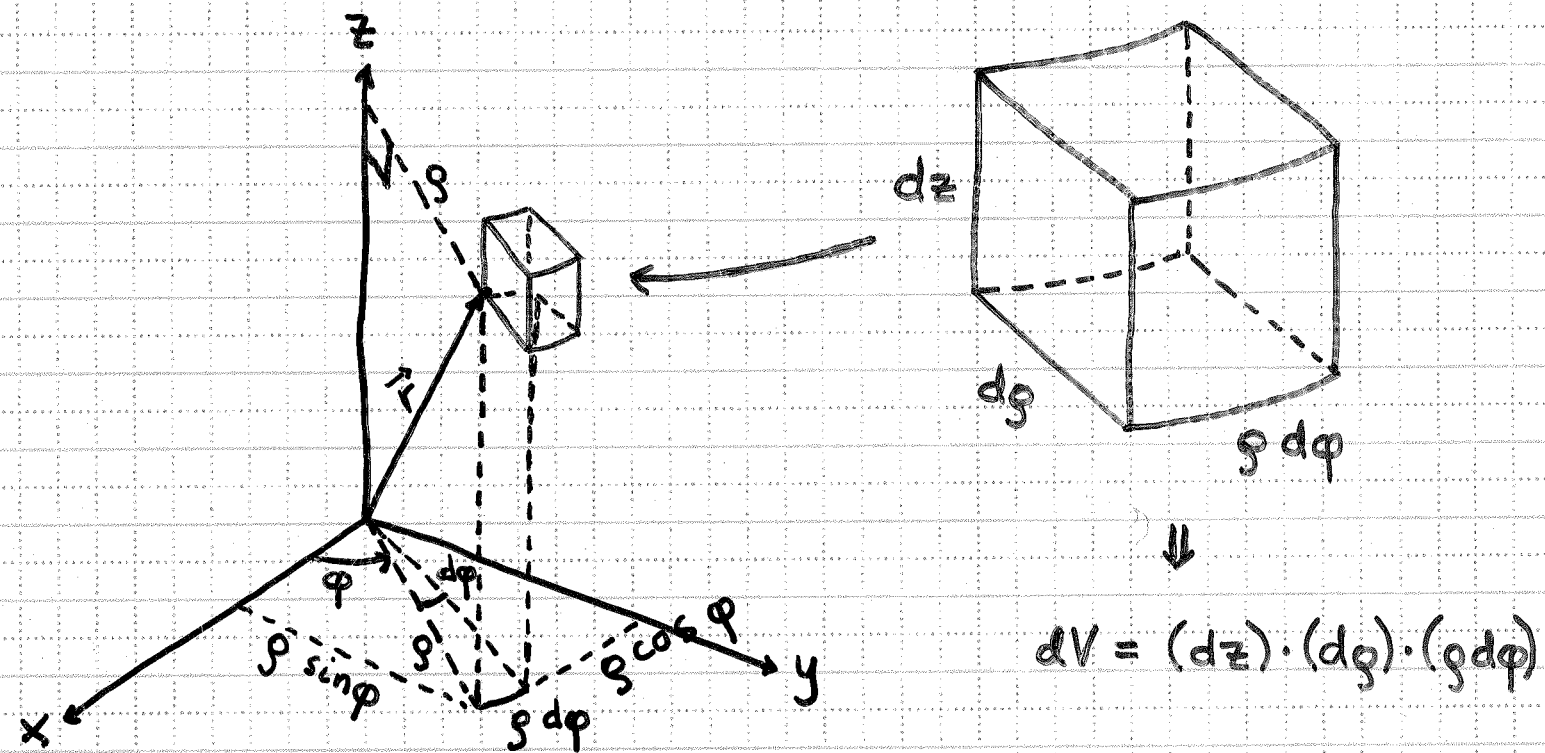


Volumenelement i cylinderkoordinater: (z, ρ, φ)



$$z = z; \quad y = \rho \sin \varphi; \quad x = \rho \cos \varphi$$

Eks: Cylinderformet rør, lengde L , indre radius a , ytre radius b . Bestem volumet V .

Løsning: $0 \leq z \leq L$; $0 \leq \varphi \leq 2\pi$; $a \leq \rho \leq b$

$$V = \int dV = \int_0^L dz \int_0^{2\pi} d\varphi \int_a^b \rho d\rho = L \cdot 2\pi \cdot \frac{1}{2} (b^2 - a^2)$$

(egentlig \iiint , men skriver som regel bare $\int dV$, mens vi vet hva vi gjør!)