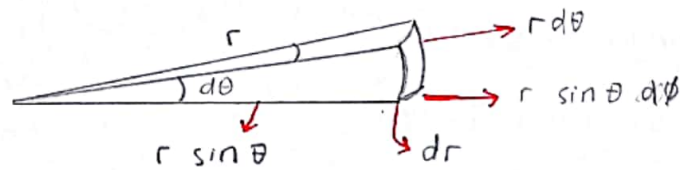
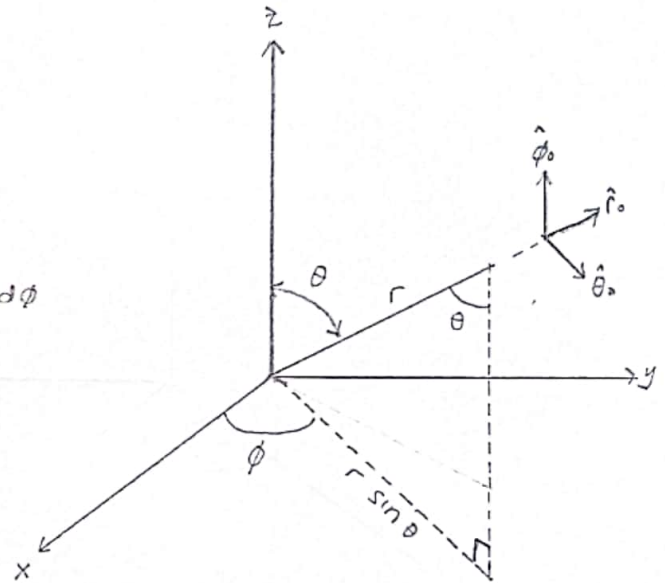
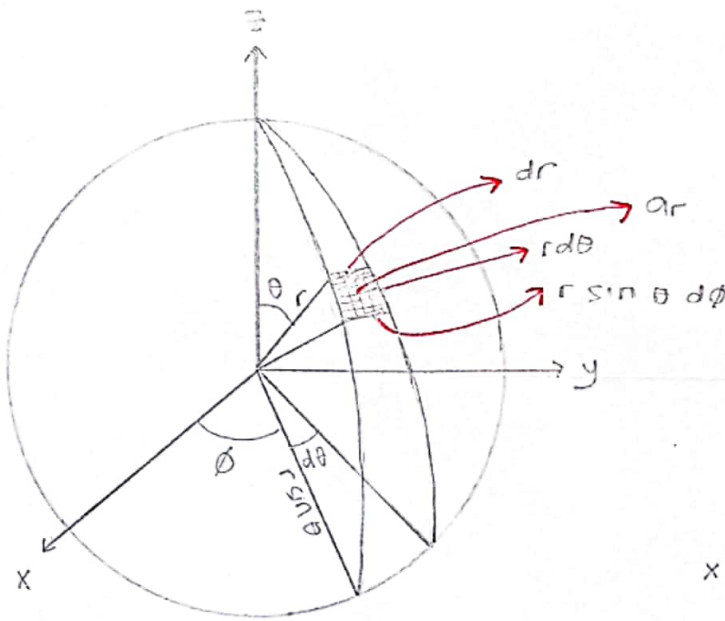


Nama = Alfia Rosa
 NPM = 2013022040
 Kelas = B

Koordinat bola (r, θ, ϕ)



$$ds = p \times l$$

$$= r \sin \theta d\phi \cdot r d\theta$$

$$= r^2 \sin \theta d\theta d\phi$$

$$dr = \hat{\theta}_\theta dr + \hat{\theta}_\theta r d\theta + \hat{\theta}_\phi r \sin \theta d\phi$$

$$d\theta = p \times l \times t$$

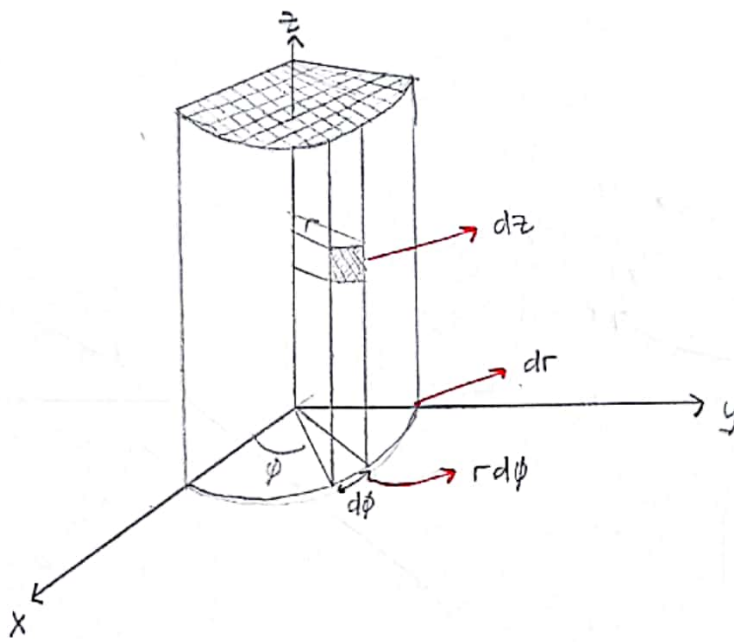
$$= r \sin \theta d\phi \cdot r d\theta \cdot dr$$

$$= r^2 \sin \theta d\theta dr d\phi$$

$$\text{- gradiennya} = \nabla t = \hat{r}_\theta \frac{\partial t}{\partial r} + \hat{\theta}_\theta \left(\frac{1}{r} \frac{\partial t}{\partial \theta} \right) + \hat{\phi}_\theta \left(\frac{1}{r \sin \theta} \frac{\partial t}{\partial \phi} \right)$$

$$\text{- Divergensinya} = \nabla \cdot \vec{v} = \frac{1}{r^2} \left(\frac{\partial}{\partial r} r^2 v_r \right) + \frac{1}{r \sin \theta} \frac{\partial}{\partial \theta} (v_\theta \sin \theta) + \frac{1}{r \sin \theta} \frac{\partial v_\phi}{\partial \phi}$$

Koordinat Silinder (r, ϕ, z)



$$d\vec{r} = \hat{r}_0 dr + \hat{\phi}_0 r d\phi + \hat{z}_0 dz$$

$$d\delta = r dr d\theta dz$$

$$\text{Gradiennya} = \nabla t = \hat{r}_0 \left(\frac{\partial t}{\partial r} \right) + \hat{\phi}_0^2 \left(\frac{1}{r} \frac{\partial t}{\partial \phi} \right) + \hat{z}_0 \left(\frac{\partial t}{\partial z} \right)$$

$$\text{Divergensinya} = \nabla \cdot \vec{V} = \frac{1}{r} \frac{\partial}{\partial r} (r v_r) + \frac{1}{r} \frac{\partial v_\phi}{\partial \phi} + \frac{\partial v_z}{\partial z}$$