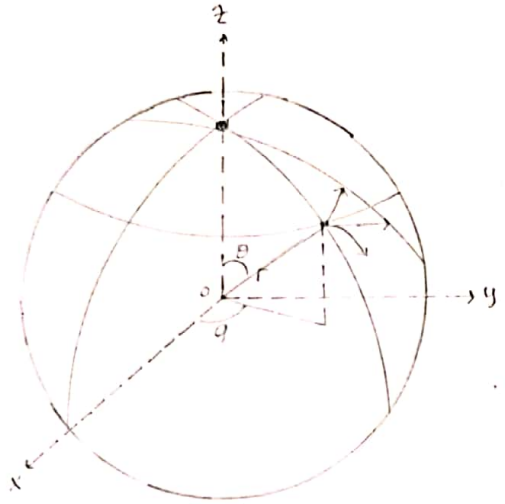
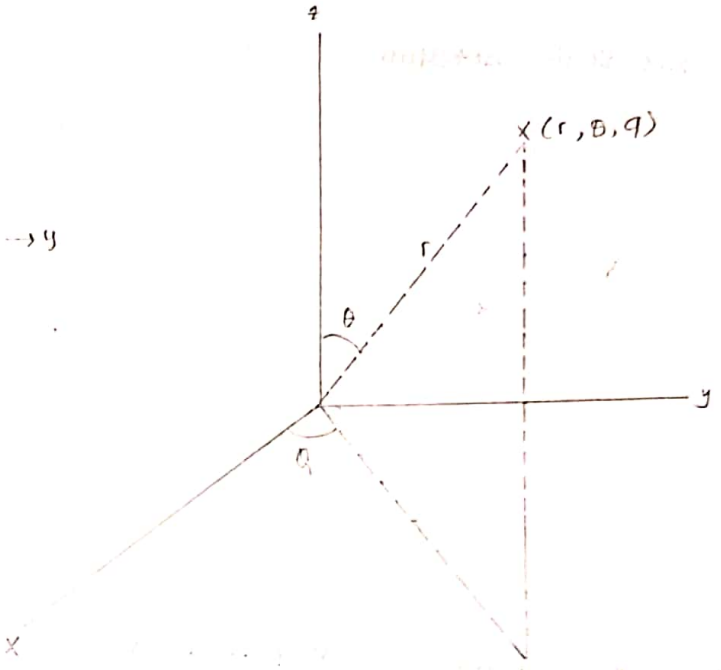
Nama : Mita Safira
NPM : 2013022044
Prodi : Pendidikan Fisika
Kelas : B

⇒ Sistem koordinat bola





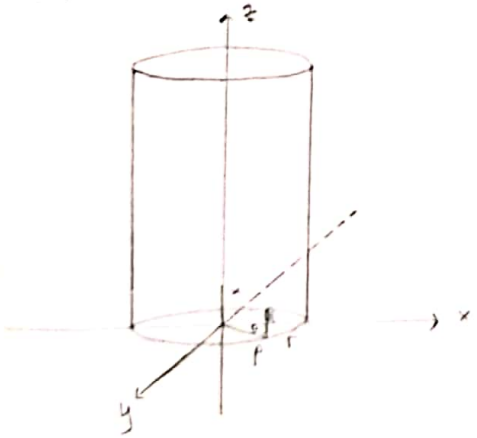
Ketiga vektor satuan saling tegak lurus, $a_r \perp a_\varphi \perp a_\theta$

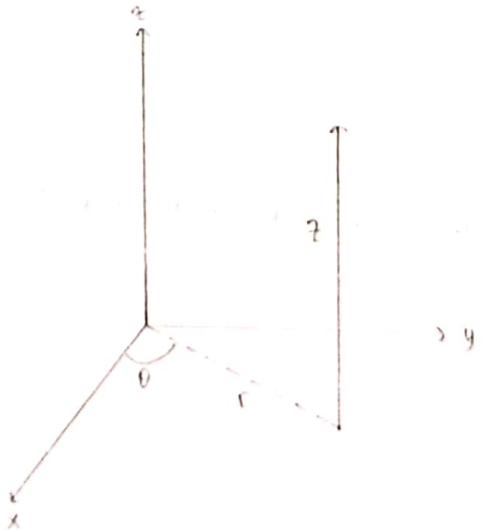
$x = r \sin\theta \cos\varphi$; $r = \sqrt{(x^2+y^2+z^2)}$ $r \geq 0$

$y = r \sin\theta \sin\varphi$; $\theta = \cos^{-1}\left(\frac{z}{\sqrt{(x^2+y^2+z^2)}}\right)$

$z = r \cos\theta$; $\varphi = \tan^{-1}\left(\frac{y}{x}\right)$

⇒ Sistem koordinat silinder





$x = r \cos \varphi$

$y = r \sin \varphi$

$z = z$

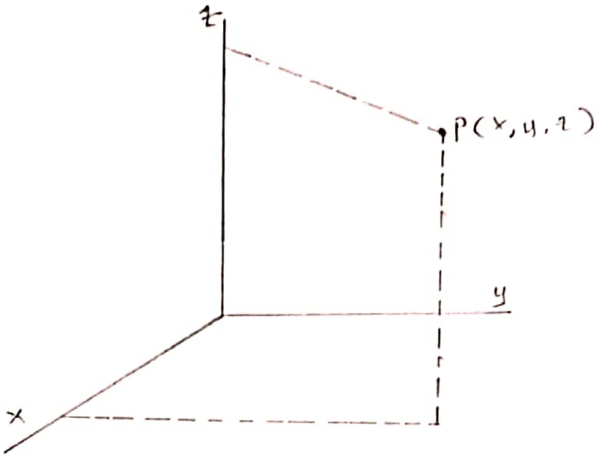
elemen vektor diferensial

$dv = r\, dr\, d\varphi\, dz$

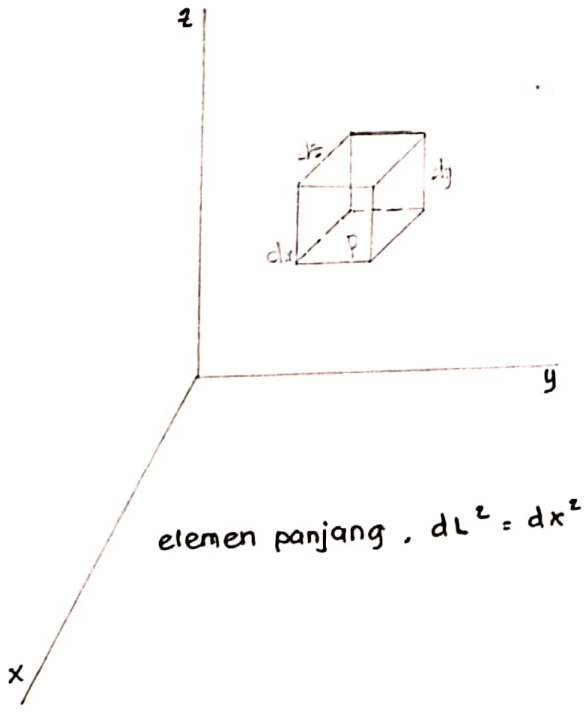
elemen garis diferensial

$dz^2 = dr^2 + (r^2 d\varphi)^2 + dz^2$

≈ Sistem koordinat kartesian



elemen volume di titik P = $dv = dx\, dy\, dz$



elemen panjang, $dL^2 = dx^2 + dy^2 + dz^2$