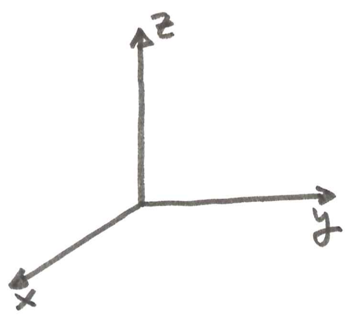
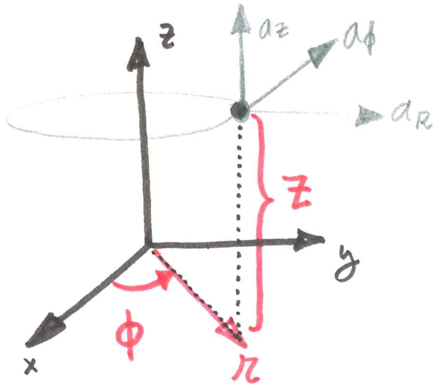
Sistemas de Coordenadas

	Cartesianas (x, y, z)	Cilíndricas (r, ϕ, z)	Esféricas (R, θ, ϕ)
Coeficientes Métricos	$h_1 = 1$ $h_2 = 1$ $h_3 = 1$	$h_1 = 1$ $h_2 = r$ $h_3 = 1$	$h_1 = 1$ $h_2 = R$ $h_3 = R \operatorname{sen}\theta$
Diferencial de Volumen	$dx\,dy\,dz$	$r \cdot dr\, d\phi\, dz$	$R^2 \operatorname{sen}\theta\, dR\, d\theta\, d\phi$
Vector $(A_1\ A_2\ A_3)$	(A_x, A_y, A_z)	(A_r, A_ϕ, A_z)	(A_R, A_θ, A_ϕ)

CARTESIANAS (x, y, z)



CILINDRICAS (r, ϕ, z)

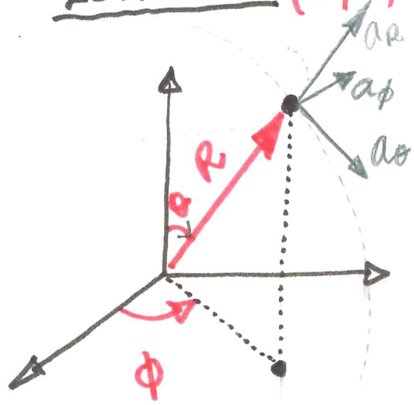


$x = r \cdot \cos\phi$

$y = r \cdot \operatorname{sen}\phi$

$z = z$

ESFERICAS (R, θ, ϕ)



$x = R \operatorname{sen}\theta \cos\phi$

$y = R \operatorname{sen}\theta \operatorname{sen}\phi$

$z = R \cdot \cos\theta$

Gradiente
$\vec{\nabla} F$

Operador nabla

$$\vec{\nabla} = \left(\frac{\partial}{h_1 \partial u_1}, \frac{\partial}{h_2 \partial u_2}, \frac{\partial}{h_3 \partial u_3} \right)$$

Divergencia

$$\vec{\nabla} \cdot \vec{A} = \frac{1}{h_1 h_2 h_3} \left[\frac{\partial}{\partial u_1}(h_2 h_3 A_1) + \frac{\partial}{\partial u_2}(h_1 h_3 A_2) + \frac{\partial}{\partial u_3}(h_1 h_2 A_3) \right]$$

Rotacional

$$\vec{\nabla} \wedge \vec{A} = \frac{1}{h_1 h_2 h_3} \begin{vmatrix} i\, h_1 & j\, h_2 & k\, h_3 \\ \frac{\partial}{\partial u_1} & \frac{\partial}{\partial u_2} & \frac{\partial}{\partial u_3} \\ h_1 A_1 & h_2 A_2 & h_3 A_3 \end{vmatrix}$$