

Coordenadas polares planas. Vectores unitarios perpendiculares.

$$\mathbf{u}_r = \cos \varphi \mathbf{i} + \text{sen } \varphi \mathbf{j}$$

$$\mathbf{u}_\varphi = -\text{sen } \varphi \mathbf{i} + \cos \varphi \mathbf{j}$$

$$r = \sqrt{x^2 + y^2}$$

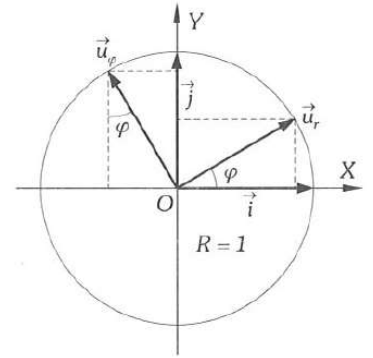
$$\varphi = \text{arctg } \frac{y}{x}$$

$$\mathbf{i} = \cos \varphi \mathbf{u}_r - \text{sen } \varphi \mathbf{u}_\varphi$$

$$\mathbf{j} = \text{sen } \varphi \mathbf{u}_r + \cos \varphi \mathbf{u}_\varphi$$

$$x = r \cos \varphi$$

$$y = r \text{sen } \varphi$$



Relación entre $(\vec{u}_r, \vec{u}_\varphi)$ y los cartesianos (\vec{i}, \vec{j}) .