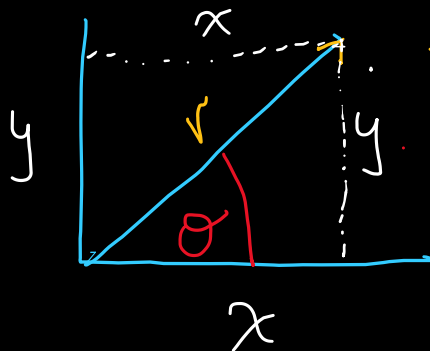


1. Convierte $(5, 60^\circ)$ a coordenadas rectangulares.
2. Convierte $(10, 225^\circ)$ a coordenadas rectangulares.
3. Convierte $(7, \frac{\pi}{3})$ a coordenadas rectangulares.
4. Convierte $(2, 150^\circ)$ a coordenadas rectangulares.
5. Convierte $(4, \frac{3\pi}{4})$ a coordenadas rectangulares.

Polares $(\underline{r}, \underline{\theta})$



1. $(5, 60^\circ)$

$$x = r \cos(\theta)$$

$$y = r \sin(\theta)$$

$$x = 5 \cos(60)$$

$$x = 2,5$$

$$60^\circ = \frac{\pi}{3}$$

$$\pi = 180^\circ$$

$$x = 5 \cos\left(\frac{\pi}{3}\right) = 5 \cdot \frac{1}{2}$$

$$x = \underline{2,5}$$

$$30^\circ - 60^\circ - 90^\circ$$

$$\text{hipotenusa} = 2$$

$$y = 5 \sin 60$$

$$y = 4,33$$

$$y = 5 \sin\left(\frac{\pi}{3}\right)$$

$$y = 5 \cdot \frac{\sqrt{3}}{2}$$

$$y = 4,33$$

Lado opuesto $30^\circ = 1$

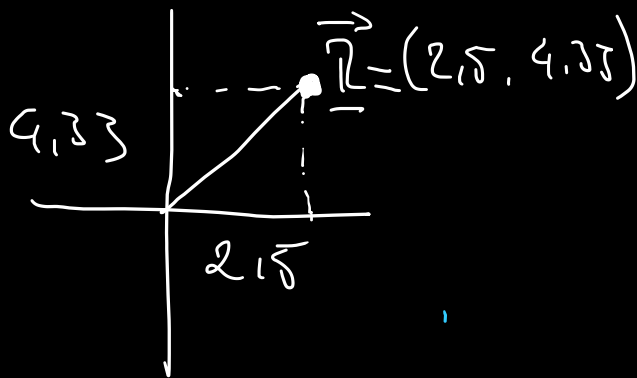
Lado opuesto $60^\circ = \sqrt{3}$

$$\cos(60^\circ) = \frac{\text{c.a.}}{h} = \frac{1}{2}$$

$$\sin(60^\circ) = \frac{\sqrt{3}}{2}$$

$$\cos \frac{\pi}{3} = \cos 60^\circ = \frac{1}{2}$$

$$P = (2,5, 4,33)$$

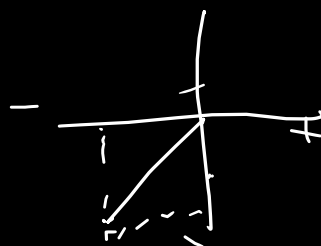


Ejercicio 2 $(10, 225^\circ)$ $225^\circ = \frac{5\pi}{4}$

$$x = 10 \cos(225) = -7,07$$

$$y = 10 \sin(225) = -7,07$$

$$P = (-7,07, -7,07)$$

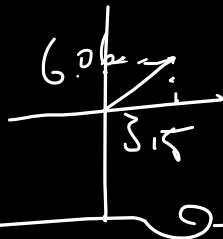


Ejercicio 3 $(7, \frac{\pi}{3})$ $\frac{\pi}{3} = 60^\circ$

$$x = 7 \cos\left(\frac{\pi}{3}\right) = 7 \cdot \frac{1}{2} = 3,5$$

$$y = 7 \operatorname{sen} \frac{\pi}{3} = 7 \cdot \frac{\sqrt{3}}{2} = 6,06$$

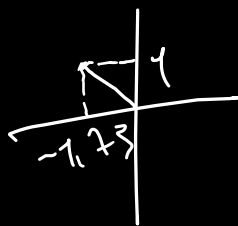
$$P = (3,5, 6,06)$$



Ejercicio 4 $(2, 150^\circ)$ $150 = \frac{5\pi}{6}$

$$x = 2 \cos(150) = -1,73$$

$$y = 2 \operatorname{sen}(150) = 1$$



Ejercicio 5 $(4, \frac{3\pi}{4})$ $\frac{3\pi}{4} = 135^\circ$

$$180 - 135 = 45^\circ = \frac{\pi}{4}$$

$$\cos \frac{\pi}{4} = \sin \frac{\pi}{4} = \frac{\sqrt{2}}{2}$$

Sen +

$$\cos - \quad \cos \frac{3\pi}{4} = -\frac{\sqrt{2}}{2} \quad \sin = \frac{\sqrt{2}}{2}$$

$$x = 4 \cos\left(\frac{3\pi}{4}\right) = 4 \cdot \left(-\frac{\sqrt{2}}{2}\right) = -2.82$$

$$y = 4 \sin\left(\frac{3\pi}{4}\right) = 4 \left(\frac{\sqrt{2}}{2}\right) = 2.82$$

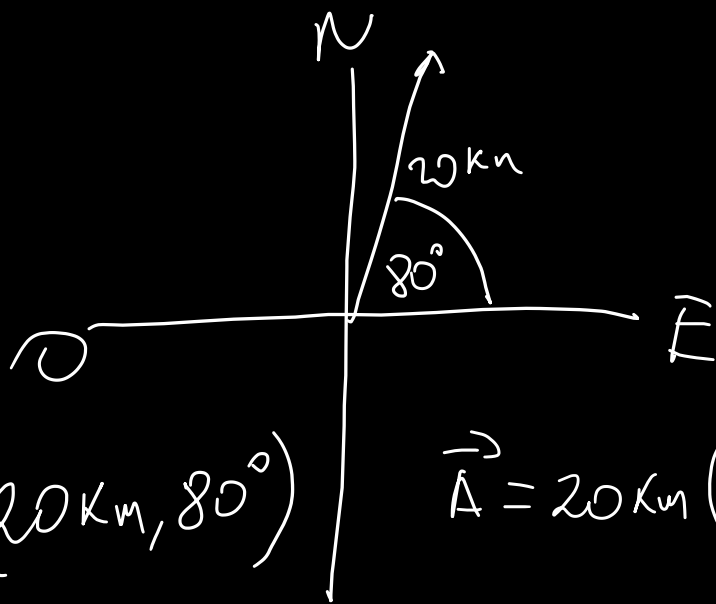
$$x = 4 \cos(135) = -2.82$$

$$y = 4 \sin(135) = 2.82$$

Coordenadas Geográficas

(0°) (180° E) (180° W)

Ángulo con respecto eje x



$$\vec{A} = (20 \text{ km}, 80^\circ)$$

$$\vec{A} = 20 \text{ km} (E 80^\circ N)$$

$$\vec{A} = (3, 5)$$

S

$$\theta = \tan^{-1} \frac{y}{x}$$

$$A = \sqrt{3^2 + 5^2} = 5.83$$

$$\theta = \tan^{-1} \frac{5}{3} = \underline{1.66}$$

$$\vec{A} = (5.83, 1.66) \text{ Polar}$$

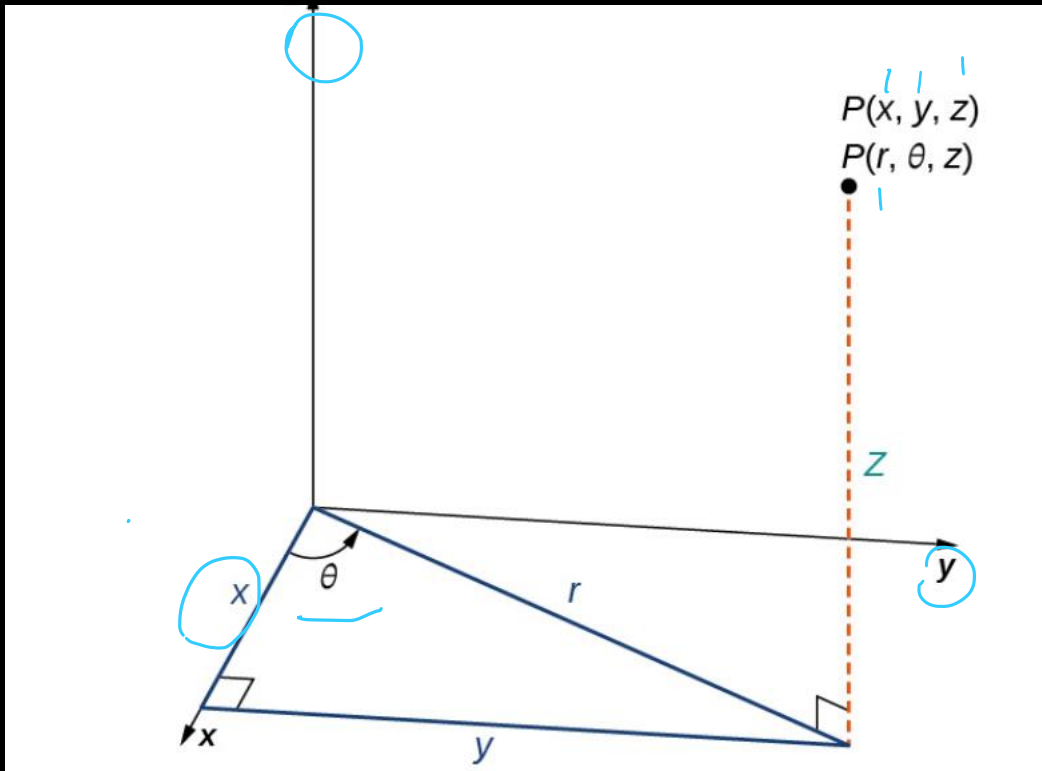
$$\vec{A} = (5.83; E 1.66 N)$$

Coordenados Cilíndricas.

Coordenada radial (r)

I, angular (θ)

II Vertical (z)



(x, y, z) (r, θ, z)

$$x = r \cos \theta$$

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

$$y = r \sin \theta$$

$$\theta = \tan^{-1} \frac{y}{x}$$

$$z = z$$

$$z = z$$

$$\text{Si } x=0 \quad \theta = \frac{\pi}{2}, \frac{3\pi}{2} \text{ o } 0$$

$$S: z=0 \quad (r, \theta, 0)$$

