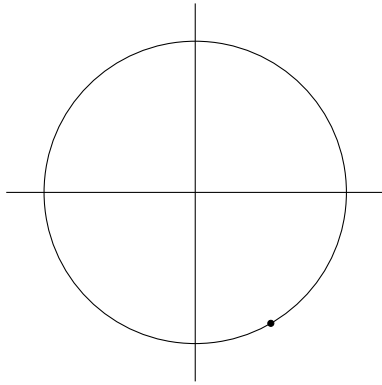


# Ejemplos de puntos en la circunferencia unitaria

En esta lista de ejercicios, todos los ángulos son múltiplos de  $\frac{\pi}{6}$  o de  $\frac{\pi}{4}$ .

**1. Ejemplo.** Dado un punto en la circunferencia unitaria, encontrar los ángulos  $\alpha$  que le corresponden y escribir  $\cos(\alpha)$  y  $\text{sen}(\alpha)$ .

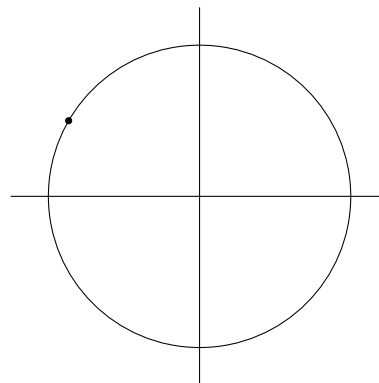
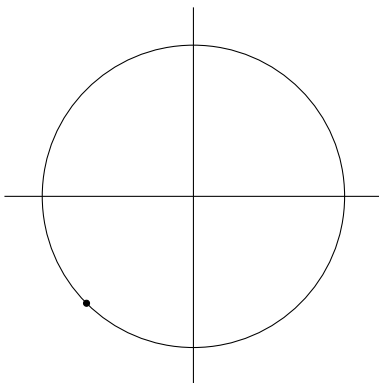
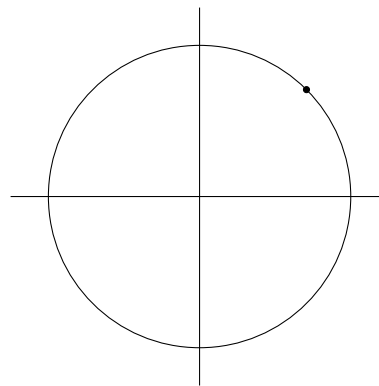
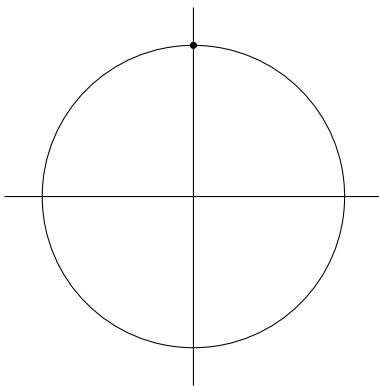


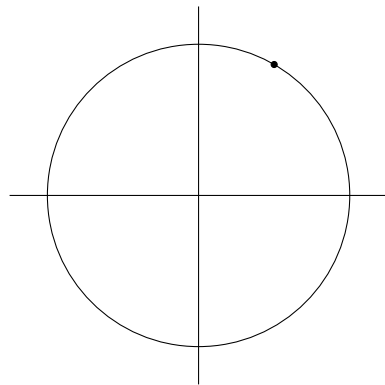
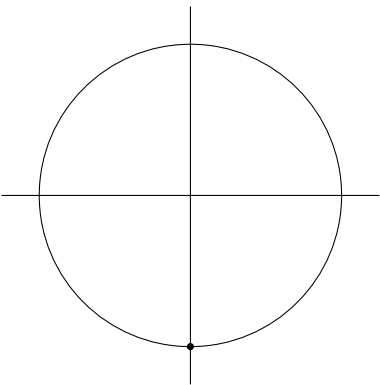
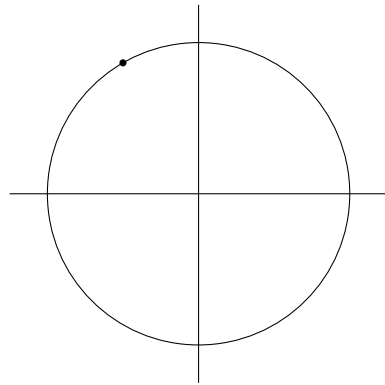
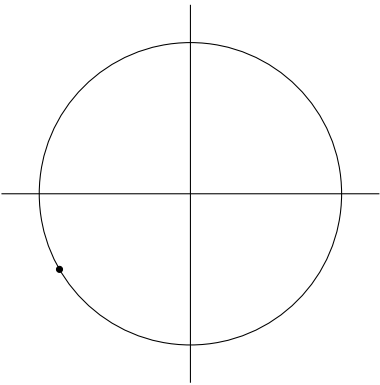
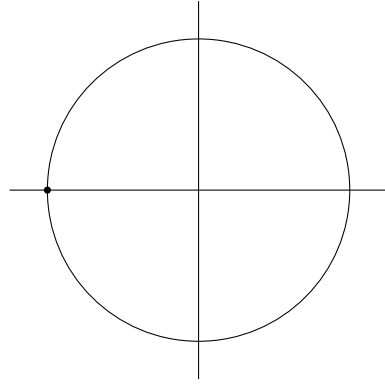
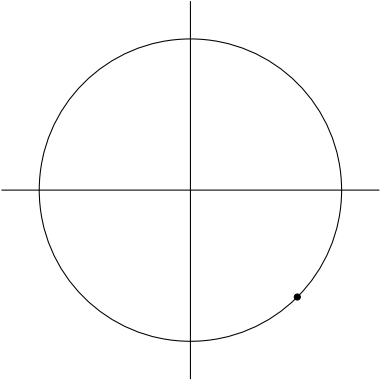
**Respuesta.**

$$\alpha = -\frac{\pi}{3} + 2k\pi, k \in \mathbb{Z}.$$

$$\cos(\alpha) = \frac{1}{2},$$

$$\text{sen}(\alpha) = -\frac{\sqrt{3}}{2}.$$





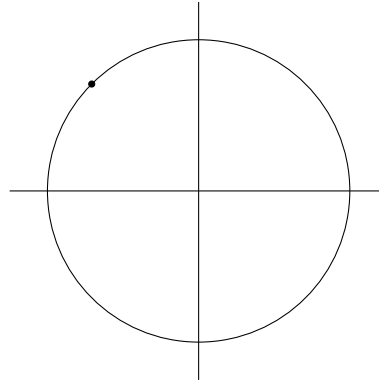
**2. Ejemplo.** Dados los valores  $\cos(\alpha)$  y  $\sin(\alpha)$ , encontrar todos los valores posibles de  $\alpha$  y marcar el punto correspondiente en la circunferencia unitaria.

$$\cos(\alpha) = -\frac{\sqrt{2}}{2},$$

$$\sin(\alpha) = \frac{\sqrt{2}}{2}.$$

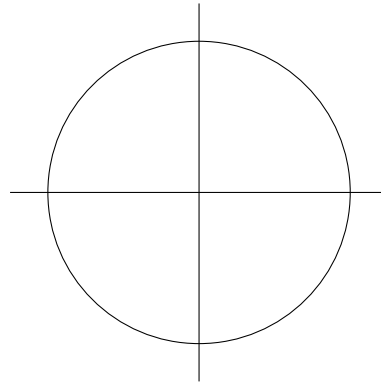
**Respuesta.**

$$\alpha = \frac{3\pi}{4} + 2k\pi, k \in \mathbb{Z}.$$



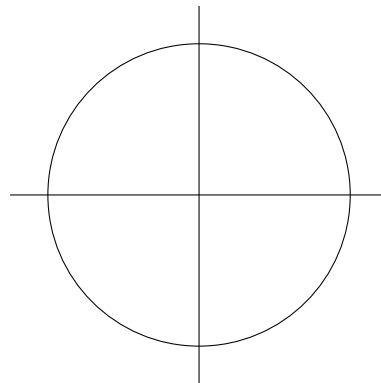
$$\cos(\alpha) = -1,$$

$$\sin(\alpha) = 0.$$

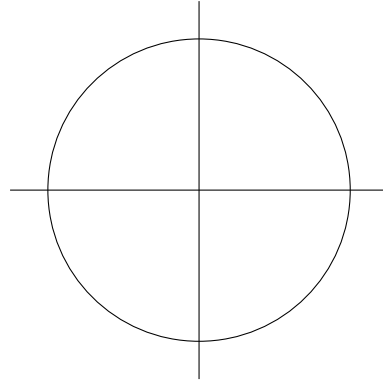


$$\cos(\alpha) = -\frac{1}{2},$$

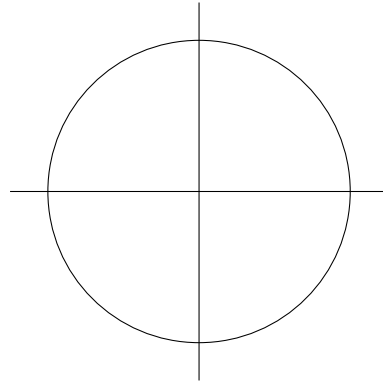
$$\sin(\alpha) = -\frac{\sqrt{3}}{2}.$$



$$\cos(\alpha) = -\frac{\sqrt{3}}{2},$$
$$\operatorname{sen}(\alpha) = -\frac{1}{2}.$$



$$\cos(\alpha) = \frac{\sqrt{2}}{2},$$
$$\operatorname{sen}(\alpha) = -\frac{\sqrt{2}}{2}.$$



$$\cos(\alpha) = 0,$$
$$\operatorname{sen}(\alpha) = -1.$$

