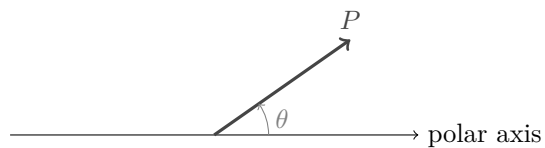
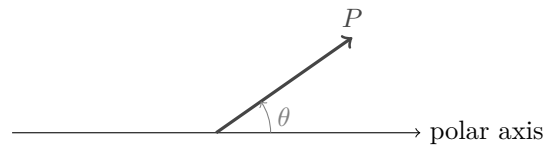


Question 10**Problem**

A navigation system reports $(r, \theta) = (5, \text{atan2}(4, -3))$. Convert to Cartesian coordinates.



Question 10 – Solution

**Solution**

1. Use the polar–Cartesian relationships

$$x = r \cos \theta, \quad y = r \sin \theta, \quad r^2 = x^2 + y^2.$$

Equivalent polar coordinates satisfy

$$(r, \theta) = (r, \theta + 2k\pi) = (-r, \theta + (2k + 1)\pi).$$

2. Apply the identity that matches the requested conversion, symmetry test, or intersection, and then check the resulting point or curve in the original polar equation.
3. The angle is in Quadrant II with cosine $-3/5$ and sine $4/5$.
4. Hence $(x, y) = \boxed{(-3, 4)}$.