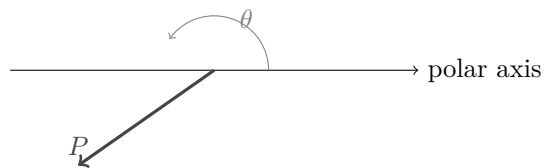
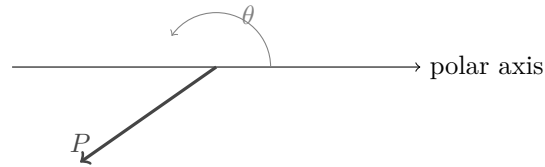


Question 9**Problem**

Find the smallest positive angle between the rays representing $(3, 17\pi/12)$ and $(2, -\pi/4)$.



Question 9 – 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. Reduce angles to $17\pi/12$ and $21\pi/12$.
4. Their smaller difference is $\boxed{\pi/3}$.