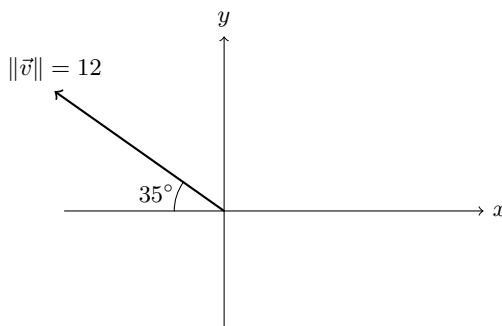


Question 2

A vector in the plane has magnitude 12, points into Quadrant II, and makes an angle of 35° with the negative x -axis. Write it in component form.

Question 2 – Solution

Strategy Identify the initial and terminal information first. Build the vector by subtracting coordinates, then use the magnitude formula or normalize only after the components are correct.



Step 1 Its standard-position angle is $180^\circ - 35^\circ = 145^\circ$.

Step 2 Use $\vec{v} = \|\vec{v}\|\langle \cos \theta, \sin \theta \rangle$.

Step 3 Thus $\boxed{\vec{v} = 12\langle -\cos 35^\circ, \sin 35^\circ \rangle}$. The signs agree with Quadrant II.

Verification The result follows from the defining vector formulas used above, and each component, magnitude, or scalar condition has been checked against the information in the question.

Key idea A vector separates two ideas: its components describe displacement, while its magnitude and unit vector describe size and direction. Always check signs and confirm that a unit vector has magnitude 1.