1 Cross Product

Given two vectors:

\[ A : \begin{bmatrix} 3 \\ 45^\circ \end{bmatrix} \quad \text{and} \quad B : \begin{bmatrix} 4 \\ 270^\circ \end{bmatrix} \]

All answers must be express in the (x,y) coordinate system.

1) Express \( \vec{A} \) and \( \vec{B} \) in component notation.

2) Calculate \( \vec{C} = \vec{A} \times \vec{B} \) in component notation.

3) Express vector \( \vec{C} \) in magnitude/direction notation.

4) Calculate \( \vec{D} = \vec{B} \times \vec{A} \) in component notation; what is the relationship between \( \vec{C} \) and \( \vec{D} \)?

(x,y) orthonormal coordinate system