3 Vector Addition

Given two vectors:

\[ A : \begin{bmatrix} 3 \\ 30^\circ \end{bmatrix} \text{ and } B : \begin{bmatrix} 4 \\ 180^\circ \end{bmatrix} \]

Angles are measured from the horizontal in the counterclockwise direction.

1) Express \( \vec{A} \) and \( \vec{B} \) in component notation in the (x,y) coordinate system.

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

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

(x,y) orthonormal coordinate system

This coordinate system has been rotated counterclockwise by an angle of 45 degree.