3 Vector Addition

Given two vectors:

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

*Angles are measured from the horizontal in the counterclockwise direction.*

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

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

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

\((x,y)\) orthonormal coordinate system