

## Lab 01 Sample Calculations

Consider the following vectors:

$$\vec{A}=5\hat{x}+3\hat{y};\vec{B}=7\hat{x}+1\hat{y}$$

Find the vector  $\vec{C}$  so that:

$$\vec{A}+\vec{B}+\vec{C}=\vec{0}$$

Show the results of the following operations:

$$\vec{A}\cdot\vec{B}=\quad$$

$$|\vec{A}|=\quad$$

Find the unit vector along the direction of  $\vec{A}$  which is given by:

$$\hat{A}\equiv\frac{\vec{A}}{|\vec{A}|}$$

Find the angle that  $\vec{B}$  makes with respect to the x axis and with respect to the y axis.

Express  $\vec{B}$  in the following form:

$$\vec{B}=|\vec{B}|\cos(\theta_{B,x})\hat{x}+|\vec{B}|\sin(\theta_{B,y})\hat{y}$$