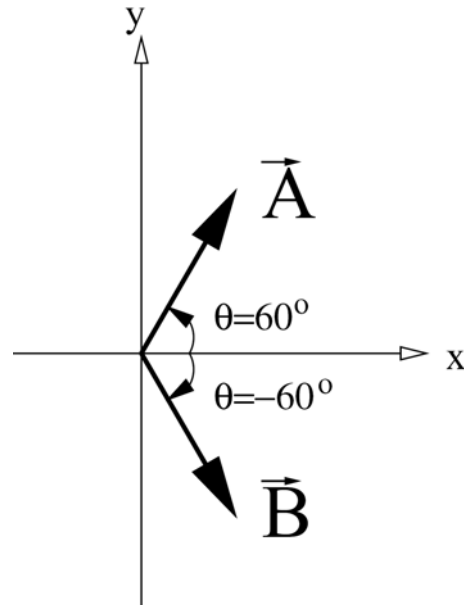


The two vectors shown here have equal length. Answer the following. It is OK to guess. You don't need to calculate.

1. Consider the vector  $\vec{C} = \vec{A} + \vec{B}$ . What is the direction of  $\vec{C}$ ? Direction is specified by an angle relative to the x axis, with counterclockwise being positive, as usual.
2. Consider the vector  $\vec{D} = \vec{A} - \vec{B}$ . What is the direction of  $\vec{D}$ ?
3. Which of the following three choices is correct: (a)  $|\vec{A} + \vec{B}| < |\vec{A}|$ ; (b)  $|\vec{A} + \vec{B}| = |\vec{A}|$ ; (c)  $|\vec{A} + \vec{B}| > |\vec{A}|$ ?



**Note:** the notation  $|\vec{A}|$  means the magnitude (or “length”) of the vector  $\vec{A}$ .

Answers:

1.  $\theta = 0^\circ$  (because the y-components of **A** and **B** cancel under addition.)
2.  $\theta = 90^\circ$  (because the x-components of **A** and **B** cancel under subtraction.)
3. (b) – true because the  $60^\circ$  angle makes the vector triangle an equilateral triangle.