Chapter C2: MDI Vectors

September 12, 2011

Consider the following vectors:

- $\vec{a}$ = the displacement from COA to the Bar Harbor airport.

- $\vec{b}$ = the displacement from MDI High School to Thunder Hole.

- $\vec{c}$ = the displacement from Somesville to The Jackson Lab.

1. Specify vectors $\vec{a}, \vec{b}, \vec{c}$ by giving their magnitude and direction. Use units of centimeters.

2. On a separate sheet of paper, draw (to scale) the following:

    (a) $\vec{a} + \vec{b}$
    (b) $\vec{b} + \vec{a}$
    (c) $\vec{c} - \vec{a}$

3. Using your ruler and protractor, determine the magnitude and direction of three vectors you drew for the previous problem.

4. Specify vectors $\vec{a}, \vec{b}, \vec{c}$ by giving their components. Use a ruler. Do not use trigonometry.

5. Give the components of the following:

    (a) $\vec{a} + \vec{b}$
    (b) $\vec{c} - \vec{a}$

6. On a separate sheet of paper draw (to scale) the following:

    (a) $2\vec{a}$
    (b) $1.5\vec{b}$

7. Give the magnitude, direction, and components, of two vectors you drew for the previous problem.

More Vector Practice

1. A displacement vector $\vec{A}$ has an x-component of 3 meters and a y-component of 2 meters. What is the magnitude and direction of $\vec{A}$?

2. A displacement vector $\vec{B}$ has a magnitude of 7 meters and a direction that is 37 degrees south of west. Find the component of $\vec{B}$.

3. Calculate $\vec{A} + \vec{B}$. Express you answer both in components and by giving the vector's magnitude and direction.