

PHYSICS 112 – SUMMER 2005 – Homework for June 14, 2005

Due in recitation during the first five minutes; after that, worth only 50% as much.

Name _____ Section _____

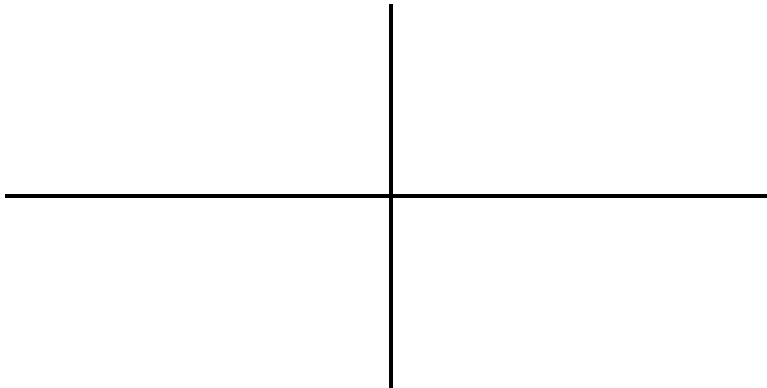
In parts (1a) through (1c), consider the two dimensionless vectors

$$\vec{A} = (3.10, 2.40) \text{ and } \vec{B} = (-3.60, +1.70).$$

(1a) Evaluate A , the magnitude of \vec{A} .

(1b) Evaluate B , the magnitude of \vec{B} .

(1c) Sketch and label these two vectors on an appropriately-labeled coordinate system below, drawing them approximately to scale. Label the four quadrants in the usual way. Name the quadrant in which each vector is found.



(2a) Suppose the vector \vec{F} in the xy plane has a magnitude of 6.40 N (6.40 newtons) and lies in the third quadrant, making an angle of 60° with the negative x axis. Make a sketch of the coordinate system and draw the vector, showing the 60° angle. Then determine the components of this vector and express the vector in the form (x component, y component).

(2b) Verify that your vector expression in part (2a) has the correct magnitude.

(3) Consider these two vectors:

\vec{A} has a length of 7.4 m and is directed 31° N of E

\vec{B} has a length of 5.8 m and is directed 67° S of W

Determine the components, magnitude, and direction of $\vec{A} - \vec{B}$. Draw a sketch to accompany your solution.