



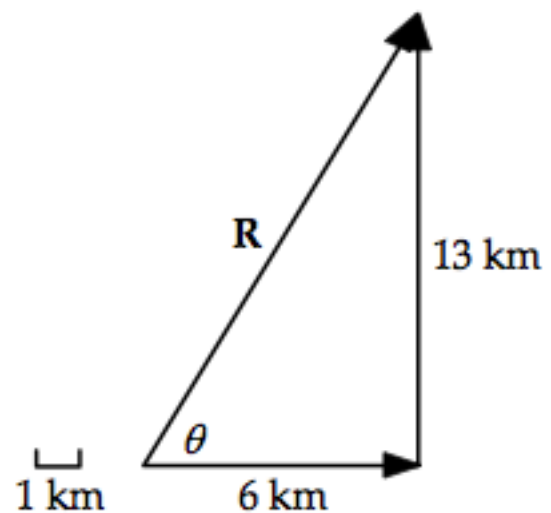
Homework #1

1)

A pedestrian moves 6.00 km east and then 13.0 km north. Find the magnitude and direction of the resultant displacement vector using the graphical method.

$$R = 14 \text{ km}$$

$$\theta = 65^\circ \text{ N of E}$$



2)

A displacement vector lying in the xy plane has a magnitude of 50.0 m and is directed at an angle of 120° to the positive x axis. What are the rectangular components of this vector?

$$x = d \cos \theta = (50.0 \text{ m}) \cos(120) = -25.0 \text{ m}$$

$$y = d \sin \theta = (50.0 \text{ m}) \sin(120) = 43.3 \text{ m}$$

$$\mathbf{d} = \boxed{(-25.0 \text{ m})\hat{\mathbf{i}} + (43.3 \text{ m})\hat{\mathbf{j}}}$$

3)

A person walks 25.0° north of east for 3.10 km. How far would she have to walk due north and due east to arrive at the same location?

The person would have to walk $3.10 \sin(25.0^\circ) =$, and

$$3.10 \cos(25.0^\circ) =$$
 .