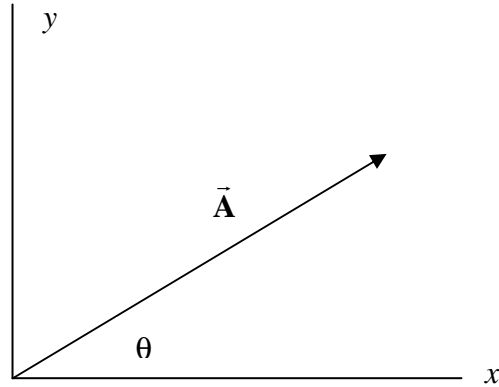


PHY2053 Summer 2012  
HITT Quiz 1

Find the  $x$ - and  $y$ -components for the vector  $\vec{A}$ .



The magnitude of the vector  $\vec{A}$  is  $A = 50$  m.

The angle  $\theta = 37^\circ$ . Use  $\cos \theta = 0.8$  and  $\sin \theta = 0.6$ .

- (A)  $A_x = 30$  m,  $A_y = 40$  m
- (B)  $A_x = 40$  m,  $A_y = 30$  m
- (C)  $A_x = -30$  m,  $A_y = 40$  m
- (D)  $A_x = -40$  m,  $A_y = 30$  m
- (E)  $A_x = -40$  m,  $A_y = -30$  m

**Answer:** (B)

**Solution:**

$$A_x = A \cos \theta = (50 \text{ m})(.8) = 40 \text{ m}$$

$$A_y = A \sin \theta = (50 \text{ m})(.6) = 30 \text{ m}$$

Comments: Since  $\vec{A}$  points in the first quadrant, both components are positive. The only viable choices are (A) and (B). Since the angle is less than  $45^\circ$ , the  $x$ -component must be larger than the  $y$ -component.