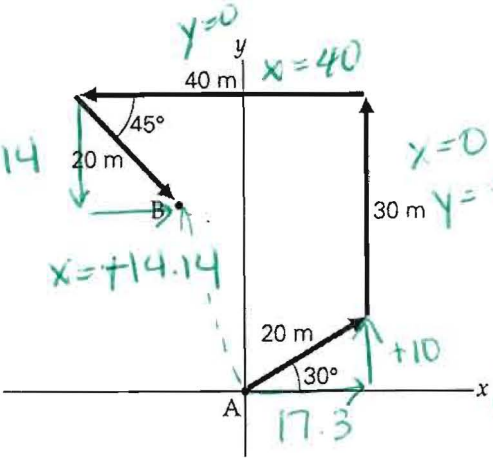


1. A person walks from point **A** to point **B** as shown in the diagram above. What is the person's displacement relative to **A**?
   a. Draw in the displacement vector as though they had gone straight from A to B.
   b. Solve for the magnitude of this vector.

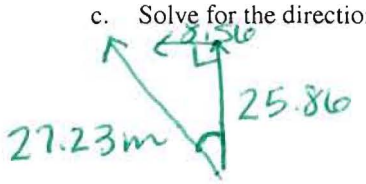
X	Y
17.3	10
0	30
-40	0
+14.14	-14.14

X net = -8.56
Y net = 25.86

magnitude = 27.23 m

**HINT: Find all of the x-components of the different steps and add those together. Then find all of the y components and add those together to get your "net x-component" and "net y-component." Use these and Pythagoras.

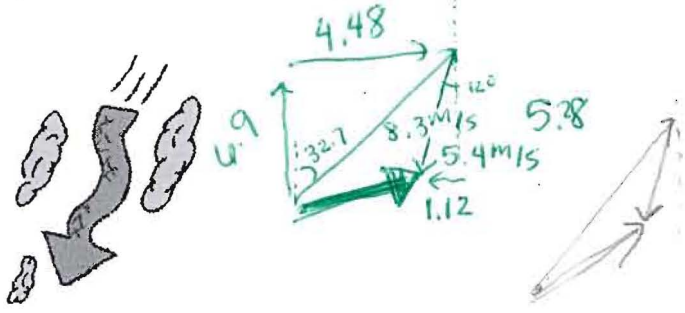
   c. Solve for the direction of this vector.



$\sin\theta = \frac{8.56}{25.86}$ $\theta = 19.33°$

***HINT: SOH-CAH-TOA is your friend! Redraw the displacement vector with the net x-component and the net y- component. See if this rings any bells!

2. Canoes and other boaters must pay attention to currents and wind to be certain that they stay on course. For example, if the canoe shown moving at a rate of 8.3 m/s while moving in the direction of 32.7° E of N and a wind was blowing at 12° W of S, at a rate of 5.4 m/s which way would the canoe actually go and how fast would it move? Make components of each contributing factor and show this below.



3.73 m/s at 25.74° N of W

X	Y
+4.48	+6.9
-1.12	-5.28
3.36	1.62