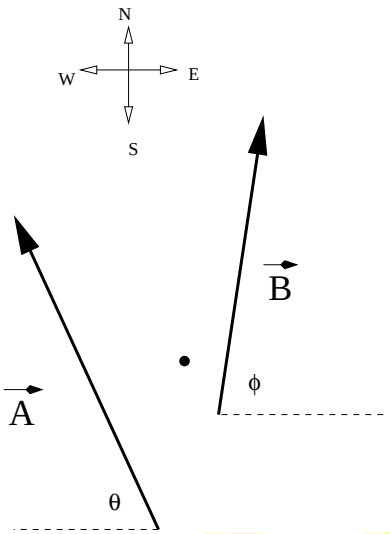
Quiz 1 – PH241 **Name**_____ ☐ **Pledged**

Given: $|\vec{A}| = 10.0, |\vec{B}| = 8.0$, $\theta = 60.^o$, and $\phi = 80^o$. Let $\vec{C} = \vec{A} + \vec{B}$.
A. Find the magnitude of $\vec{C}$
B. Find the direction of $\vec{C}$ relative to north.
C. Write $\vec{C}$ in component form.
D. Draw $\vec{C} = \vec{A} + \vec{B}$ in graphical form.

For full credit draw a detailed picture of calculation!

For a general vector $|\vec{D}| = \sqrt{D_x^2 + D_y^2}$
and $\sin\theta_D = \frac{\text{opp.}}{\text{hyp.}}$, $\cos\theta_D = \frac{\text{adj.}}{\text{hyp.}}$, $\tan\theta_D = \frac{\text{opp.}}{\text{adj.}}$



$A_x = -10\cos 60^\circ = -5.0$

$A_y = +10\sin 60^\circ = +8.66$

$B_x = 8\cos 80^\circ = +1.39$

$B_y = 8\sin 80^\circ = 7.88$

$C_x = -3.61$ (D)

$C_y = 16.54$

(A) $|C| = \sqrt{(-3.61)^2 + (16.54)^2} = 16.93$

(B) $\theta = \tan^{-1}\frac{C_y}{C_x}$

$\theta = 77.7^\circ$ or 12.3° West of North