

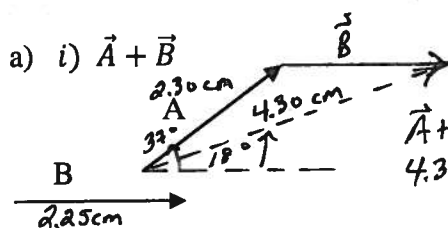
# ANSWERS

SPH4U

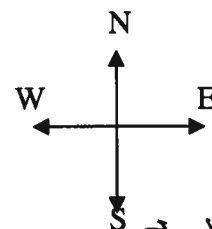
Adding and Subtracting Vectors in 2-Dimensions

Date: \_\_\_\_\_

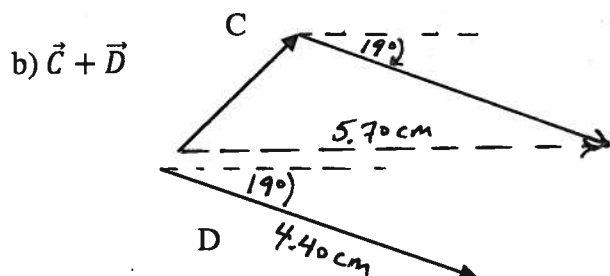
1. Using a ruler and compass, add or subtract the given vectors as indicated. State the magnitude and direction of the resultant vector with reference to the coordinate directions.  
(Record all magnitudes to the nearest millimetre)



i)  $\vec{B} + \vec{A} = 4.30 \text{ cm} [E 19^\circ N]$

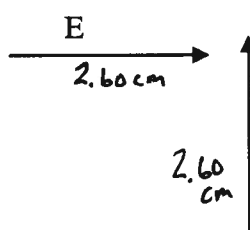


\* Note that  $\vec{A} + \vec{B} = \vec{B} + \vec{A}$   
(within acceptable measurement error)

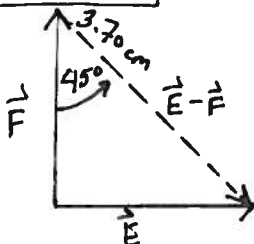


$\vec{C} + \vec{D} = 5.70 \text{ cm} [E]$

c)  $\vec{E} - \vec{F}$

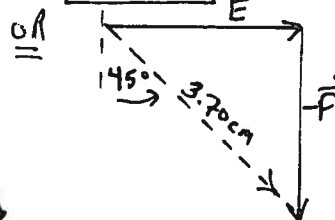


Method 1  
"tail to tail"



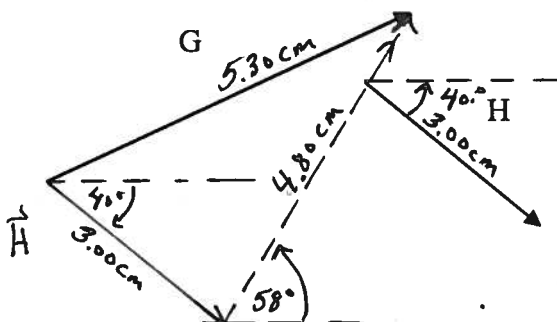
Method 2

$\vec{E} + (-\vec{F})$



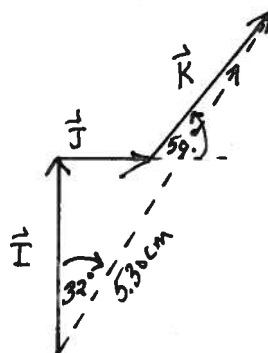
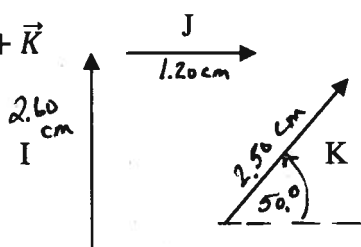
$\vec{E} - \vec{F} = 3.70 \text{ cm} [SE]$

d)  $\vec{G} - \vec{H}$



$\vec{G} - \vec{H} = 4.80 \text{ cm} [E 58^\circ N]$

e)  $\vec{I} + \vec{J} + \vec{K}$



$\vec{I} + \vec{J} + \vec{K} = 5.30 \text{ cm}$   
 $[N 32^\circ E]$