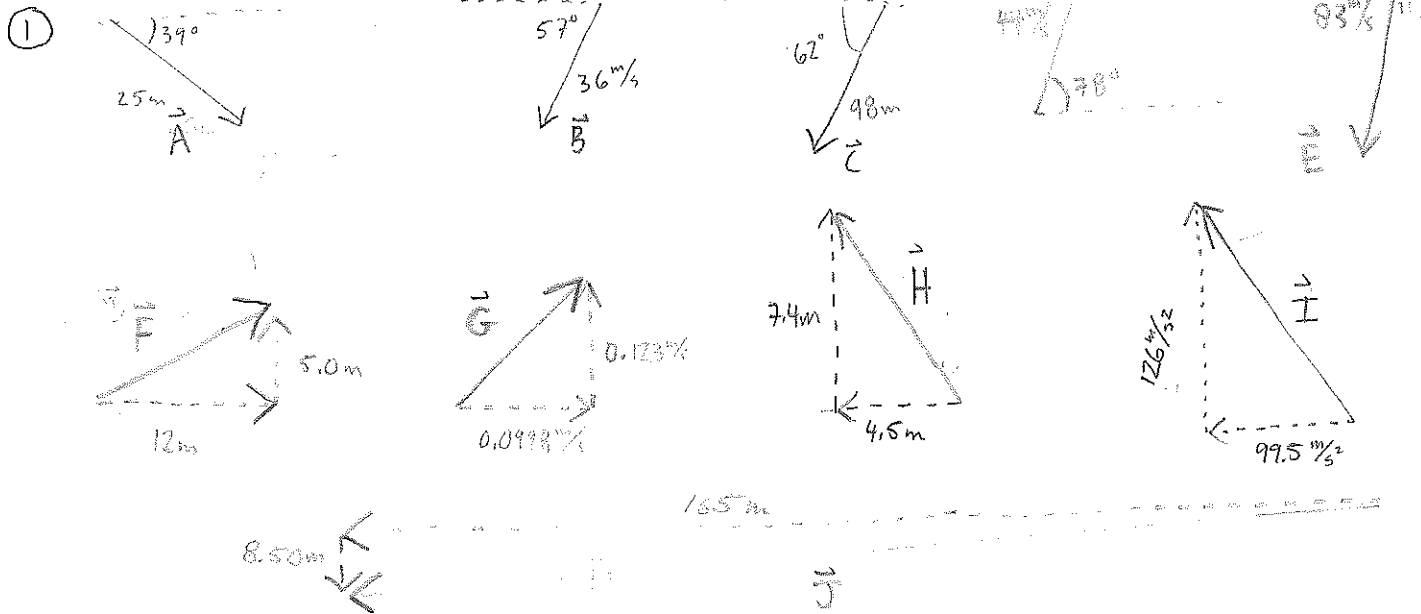


Vectorama!



② $\vec{A}_x = 25m(\cos 39^\circ) = 19m \hat{x}$
 $\vec{A}_y = -25m(\sin 39^\circ) = -16m \hat{y}$

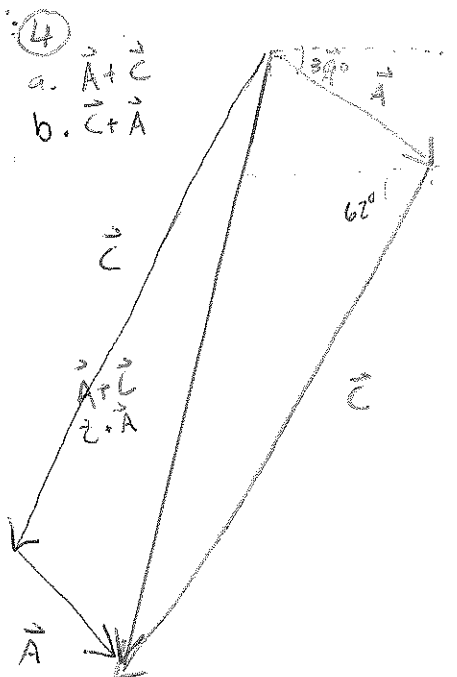
$\vec{B}_x = -36 \text{ m/s} \cos 57^\circ = -2.0 \times 10 \text{ m/s} \hat{x}$
 $\vec{B}_y = -36 \text{ m/s} \sin 57^\circ = -3.0 \times 10 \text{ m/s} \hat{y}$

$\vec{C}_x = -98 \cos 62^\circ = -46m \hat{x}$
 $\vec{C}_y = -98 \sin 62^\circ = -87m \hat{y}$

$\vec{D}_x = 44 \cos 78^\circ = 9.1 \text{ m/s} \hat{x}$
 $\vec{D}_y = 44 \sin 78^\circ = 43 \text{ m/s} \hat{y}$

$\vec{E}_x = 83 \sin 11^\circ = -16 \text{ m/s} \hat{x}$ OR $16 \text{ m/s} \text{ W}$
 $\vec{E}_y = 83 \cos 11^\circ = -81 \text{ m/s} \hat{y}$ OR $81 \text{ m/s} \text{ S}$

- ③ $\vec{F} = 13m @ 23^\circ \text{ above } +x$
 $\vec{G} = 0.158 \text{ m/s} @ 50.9^\circ \text{ above } +x$
 $\vec{H} = 8.7m @ 59^\circ \text{ above } -x$
 $\vec{I} = 161 \text{ m/s}^2 @ 51.7^\circ \text{ above } -x$
 $\vec{J} = 165m @ 2.95^\circ \text{ below } -x$



$$\vec{A}_x = 19.4286\text{m}$$

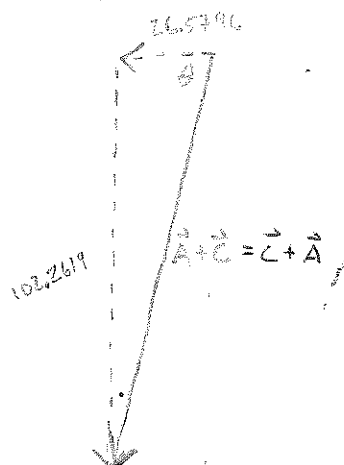
$$\vec{C}_x = -46.0082$$

$$\vec{A}_y = -15.7330$$

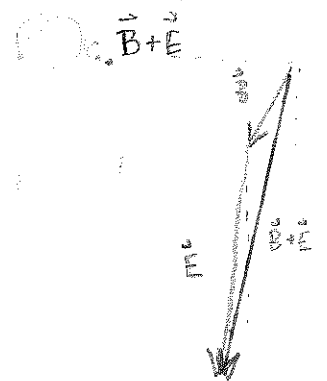
$$\vec{C}_y = -86.5289$$

$$\vec{A} + \vec{C}_x = -26.5796$$

$$\vec{A} + \vec{C}_y = -102.2619$$



$\vec{A} + \vec{C} = 110\text{m} @ 75^\circ \text{ below } -x$



$$B_x = -19.6070$$

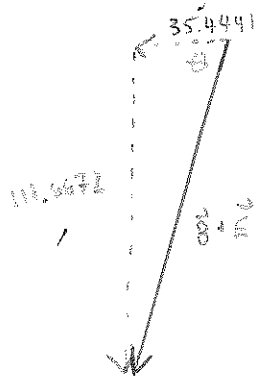
$$E_x = -15.8371$$

$$B_y = -30.1921$$

$$E_y = -81.4751$$

$$\vec{B} + \vec{E}_x = -35.4441$$

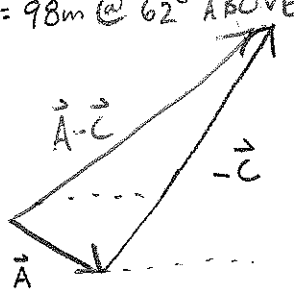
$$\vec{B} + \vec{E}_y = -111.6672$$



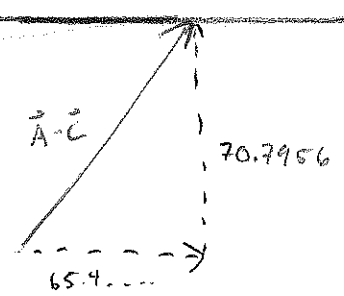
$\vec{B} + \vec{E} = 120\text{m} @ 72^\circ \text{ below } -x$

d. CANNOT ADD. The two quantities are dimensionally different!

⑤ a. $\vec{A} - \vec{C} = \vec{A} + (-\vec{C})$
 $-\vec{C} = 98\text{m} @ 62^\circ \text{ ABOVE } +x$



	x	y
A	$+25\cos 39$	$-25\sin 39$
-C	$+98\cos 62$	$+98\sin 62$
$\vec{A} + (-\vec{C})$	65.4368...	70.7956



$\vec{A} - \vec{C} = 96\text{m} @ 47^\circ \text{ above } +x$

b. $\vec{C} - \vec{A} = \vec{C} + (-\vec{A})$

$-\vec{A}$

$C_x = -46.0082$

$C_y = -86.5289$

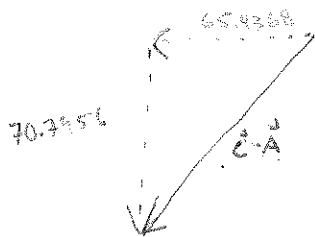
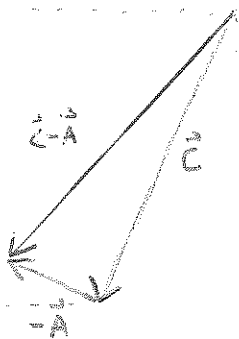
$A_x = 19.4286$

$-A_y = 15.7330$

$\vec{C}_x = (C_x) = -65.4368$

$\vec{C}_y = (A_y) = -70.7956$

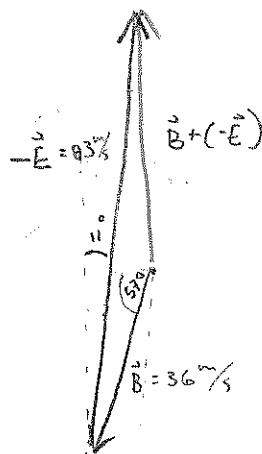
$-\vec{A} = 25m @ 39^\circ \text{ ABOVE } -x$



$\vec{C} - \vec{A} = 96m @ 47^\circ \text{ below } -x$

c. $\vec{B} - \vec{E} = \vec{B} + (-\vec{E})$

$-\vec{E} = 83m/s @ 11^\circ \text{ E of N}$



B $-36 \cos 57^\circ$ $-36 \sin 57^\circ$

-E $+83 \sin 11^\circ$ $+83 \cos 11^\circ$

$\vec{B} + (-\vec{E})$ -3.769858694 51.28291578

$\vec{B} - \vec{E} = 51 m/s @ 86^\circ \text{ above } -x$

6. a. $2\vec{D} = 88 m/s @ 78^\circ \text{ N of E}$

b. $-4\vec{E} = 330 m/s @ 11^\circ \text{ E of N}$