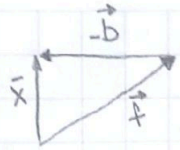
FECHA: TRABAJO EN CLASES 1

1) 6pts

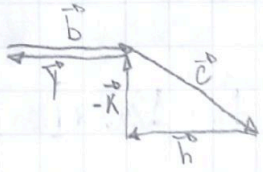
a) $\vec{x} + \vec{b} = \vec{f}$

$\vec{x} = \vec{f} - \vec{b}$



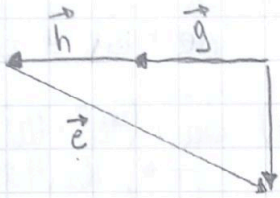
$\vec{x} = \vec{a} = -\vec{k} = -\vec{d}/2$

b) $\vec{y} = \vec{b} + \vec{c} + \vec{h} - \vec{k}$



$\vec{y} = \vec{g} = \vec{h} = -\vec{b}$

c) $\vec{z} = \vec{g} + \vec{h} + \vec{e}$



$\vec{z} = \vec{d} = 2\vec{k} = -2\vec{a}$

2) 30pts

I (6)

$\vec{A} = 2{,}8\,cm \cdot \cos 60\,\hat{x} + 2{,}8 \operatorname{sen} 60\,\hat{y}$

$\vec{A} = (1{,}4\,\hat{x} + 2{,}4\,\hat{y})\,[cm]$

$\vec{B} = 1{,}9\,cm \cos 60\,\hat{x} - 1{,}9 \operatorname{sen} 60\,\hat{y}$

$\vec{B} = (0{,}95\,\hat{x} - 1{,}6\,\hat{y})\,[cm]$

a) $\vec{A} + \vec{B} = (1{,}4 + 0{,}95)\hat{x} + (2{,}4 - 1{,}6)\hat{y}$

$\rightarrow (2{,}35\,\hat{x} + 0{,}8\,\hat{y})\,cm$

b) $\vec{A} - \vec{B} = (1{,}4\hat{x} + 2{,}4\hat{y}) - (0{,}95\hat{x} - 1{,}6\hat{y})$

$\rightarrow (0{,}45\,\hat{x} + 4\,\hat{y})\,[cm]$

c) $3\vec{A} - 5\vec{B} = 3(1{,}4\hat{x} + 2{,}4\hat{y}) - 5(0{,}95\hat{x} - 1{,}6\hat{y})$

$4{,}2\,\hat{x} + 7{,}2\,\hat{y} - 4{,}8\,\hat{x} + 8\,\hat{y}$

$\rightarrow (-0{,}6\,\hat{x} + 15{,}2\,\hat{y})\,[cm]$

(9)

II (6)

$\vec{A} = 12\,m \cdot \cos 180°\,\hat{x} + 12\,m \cdot \operatorname{sen} 180°\,\hat{y}$

$\vec{A} = (-12\,\hat{x})\,[cm]$

$\vec{B} = 18\,m \cdot \cos 37\,\hat{x} + 18\,m \cdot \operatorname{sen} 37\,\hat{y}$

$\vec{B} = (14{,}8\,\hat{x} + 10{,}8\,\hat{y})\,[cm]$

a) $\vec{A} + \vec{B} = (-12\,\hat{x}) + (14{,}8\,\hat{x} + 10{,}8\,\hat{y})$

$\rightarrow (2{,}8\,\hat{x} + 10{,}8\,\hat{y})\,[cm]$

b) $\vec{A} - \vec{B} = (-12\,\hat{x}) - (14{,}8\,\hat{x} + 10{,}8\,\hat{y})$

$\rightarrow (-26{,}8\,\hat{x} - 10{,}8\,\hat{y})\,[cm]$

(9)

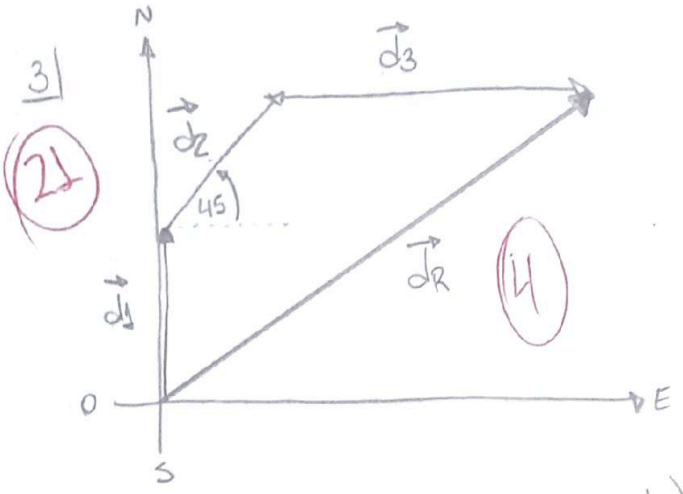
c) $3\vec{A} - 5\vec{B} = 3(-12\,\hat{x}) - 5(14{,}8\,\hat{x} + 10{,}8\,\hat{y})$

$= -36\,\hat{x} - 74\,\hat{x} - 54\,\hat{y}$

$\rightarrow (-110\,\hat{x} - 54\,\hat{y})\,[cm]$

FECHA:

3)



(21) (4)

$\vec{d}_1 = 100\,\hat{j}\,[Mn]$ (2)

$\vec{d}_2 = 60Mn\cos 45\,\hat{i} + 60Mn\cdot \operatorname{sen}45\,\hat{j}$

$\hookrightarrow (42,4\,\hat{i} + 42,4\,\hat{j})[Mn]$ (3)

$\vec{d}_3 = 120\,\hat{i}\,[Mn]$ (2)

$\vec{d}_R = \vec{d}_1 + \vec{d}_2 + \vec{d}_3$

b) $\vec{d}_R = (42,4 + 120)\hat{i} + (100 + 42,4)\hat{j}\,[Mn]$

$\hookrightarrow 162,4\,\hat{i} + 142,4\,\hat{j}\,[Mn]$

$\hookrightarrow (300764,8\,\hat{i} + 263.724,8\,\hat{j})[m]$ (3)

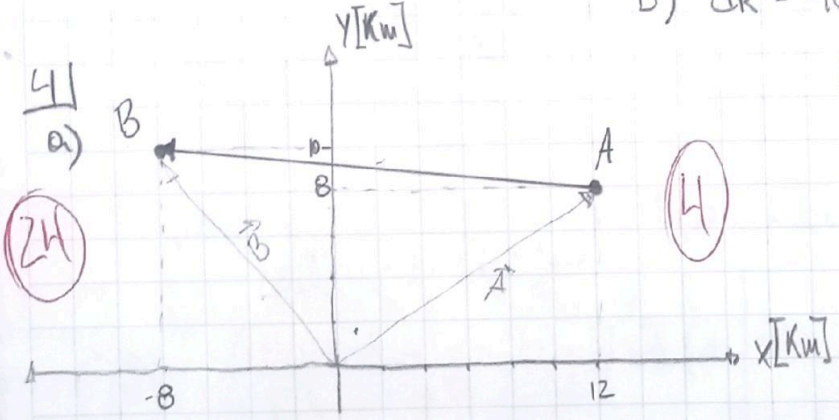
a) $|d_R| = \sqrt{(300.764,8)^2 + (263.724,8)^2}\,[m]$

$|d_R| = 400012,8[m]$; $\theta = tg^{-1}\left(\frac{136.724,8}{300.764,8}\right) = 41,2°$

$\vec{d}_R = 400.012,8[m]$ Este 41,2° Norte (4)

b) $\vec{d}_R = 400.012,8[m] \measuredangle 41,2°$ (3)

4)



(24) (4)

a) $\vec{A} = 12\,\hat{i} + 8\,\hat{j}$ (2)

$\vec{B} = -8\,\hat{i} + 10\,\hat{j}$

$\vec{B} = \vec{A} + \vec{AB}$

$\vec{AB} = \vec{B} - \vec{A}$

$= (-8\,\hat{i} + 10\,\hat{j}) - (12\,\hat{i} + 8\,\hat{j})$ (4)

$\hookrightarrow (-20\,\hat{i} + 2\,\hat{j})[km]$

$|AB| = \sqrt{20^2 + 2^2} = 20,1[km]$

$\theta = tg^{-1}\left(\frac{2}{20}\right) = 5,7° \rightarrow (180 - 5,7)° = 174°$

$\vec{AB} = 20,1[km] \measuredangle 174°$ (5)

c)

- $\vec{A} = 12\,\hat{i} + 8\,\hat{j} \rightarrow |A| = \sqrt{12^2 + 8^2} = 14,4[km]$

$\theta_A = tg^{-1}\left(\frac{12}{8}\right) \rightarrow 56°$ $\quad \vec{A} = 14,4[km]$ al 033°

- $\vec{B} = -8\,\hat{i} + 10\,\hat{j} \rightarrow |B| = \sqrt{8^2 + 10^2} = 12,8[km]$

$\theta_B = tg^{-1}\left(\frac{10}{8}\right) \rightarrow 51° \Rightarrow (270 + 51)° = 321°$ (6)

$\vec{B} = 12,8[km]$ al 321°