Correction Devoir n° 6   Vecteurs (1)   4GT

/65

1# /7

a) $\overrightarrow{EA} = \overrightarrow{GD} = \overrightarrow{HF} = \overrightarrow{FK} = \ldots$

b) $\overrightarrow{OK} \parallel \overrightarrow{GD} \parallel \overrightarrow{PA} \parallel \overrightarrow{TK} \parallel \ldots$

c) $-\overrightarrow{RT} = \overrightarrow{TR} = \overrightarrow{SQ} = \overrightarrow{FD} = \overrightarrow{EC} = \ldots$

d) $\overrightarrow{AA} = \overrightarrow{RR} = \overrightarrow{JJ} = \overrightarrow{KK} = \ldots$

e) $-\overrightarrow{RO} = \overrightarrow{OR} = \overrightarrow{DE} = \overrightarrow{LF} = \overrightarrow{BH} = \ldots$

f) $\overrightarrow{MK} = \overrightarrow{DA} = \overrightarrow{FN} = \overrightarrow{SF} = \overrightarrow{KJ} = \ldots$

g) $\overrightarrow{FD} \parallel \overrightarrow{QJ} \parallel \overrightarrow{CG} \parallel \overrightarrow{KL} \parallel \overrightarrow{PI} \parallel \ldots$

2# $\overrightarrow{AB} : \begin{pmatrix} 2 \\ -2 \end{pmatrix}$ $\overrightarrow{AC} \begin{pmatrix} -2 \\ -2 \end{pmatrix}$ $\overrightarrow{AD} \begin{pmatrix} 0 \\ -4 \end{pmatrix}$ $\overrightarrow{BD} \begin{pmatrix} -2 \\ -2 \end{pmatrix}$ $\overrightarrow{CD} \begin{pmatrix} 2 \\ -2 \end{pmatrix}$ /10

$\vec{u} \begin{pmatrix} -3 \\ 2 \end{pmatrix}$ $\vec{v} \begin{pmatrix} 4 \\ 0 \end{pmatrix}$ $\vec{w} \begin{pmatrix} -1 \\ -2 \end{pmatrix}$ $\vec{s} \begin{pmatrix} 2 \\ 3 \end{pmatrix}$ $\overrightarrow{DC} + \vec{s} : \begin{pmatrix} 0 \\ 5 \end{pmatrix}$

3# a) $\overrightarrow{AB} \begin{pmatrix} -6 \\ 9 \end{pmatrix}$ b) $\overrightarrow{CD} \begin{pmatrix} 6 \\ 4 \end{pmatrix}$ c) $\begin{pmatrix} -5 \\ -11 \end{pmatrix}$ /3

4# $A(x,y)$ $\begin{pmatrix} 1-x \\ -1-y \end{pmatrix} = \begin{pmatrix} 3 \\ -4 \end{pmatrix} \Leftrightarrow \begin{cases} 1-x=3 \\ -1-y=-4 \end{cases} \Leftrightarrow \begin{cases} x=1-3 \\ \quad =-2 \\ y=-1+4 \\ \quad =3 \end{cases}$

$A(-2,3)$ /2

5# $B(x,y)$ $\begin{pmatrix} x-2 \\ y-3 \end{pmatrix} = \begin{pmatrix} -7 \\ -2 \end{pmatrix} \Leftrightarrow \begin{cases} x-2=-7 \\ y-3=-2 \end{cases} \Leftrightarrow \begin{cases} x=-7+2 \\ \quad =-5 \\ y=-2+3 \\ \quad =1 \end{cases}$

$B(-5,1)$ /2

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6# 1) $\overrightarrow{IH} + \overrightarrow{JB} = \overrightarrow{JI} + \overrightarrow{IA} = \overrightarrow{JA}$ /2

2) $\frac{1}{2}\overrightarrow{KD} + \overrightarrow{JH} = \overrightarrow{HF} + \overrightarrow{JH} = \overrightarrow{JH} + \overrightarrow{HF} = \overrightarrow{JF}$ /2

3) $\overrightarrow{AK} - \overrightarrow{DC} - \frac{2}{3}\overrightarrow{AI} = \overrightarrow{AK} + \overrightarrow{CD} + \frac{2}{3}\overrightarrow{IA}$

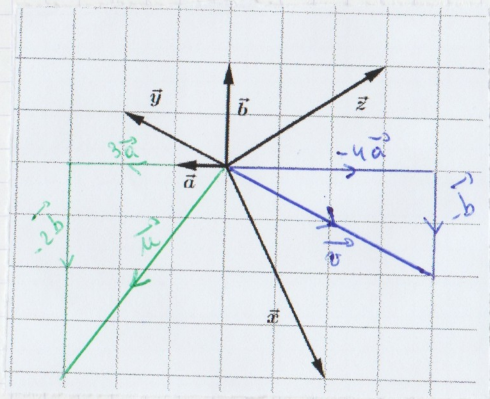
$= \overrightarrow{AK} + \overrightarrow{KF} + \overrightarrow{FA} = \overrightarrow{AA} = \vec{0}$ /2

4) $3\overrightarrow{GD} - \overrightarrow{FG} + 2\overrightarrow{EK} = \overrightarrow{JB} + \overrightarrow{GF} + \overrightarrow{EH}$ /3

$= \overrightarrow{JB} + \overrightarrow{BA} + \overrightarrow{AF} = \overrightarrow{JF}$

7# et 8# : voir page suivante

9# /6




$\vec{x} = -2\vec{a} - 2\vec{b}$

$\vec{x} \begin{pmatrix} -2 \\ -2 \end{pmatrix}$

$\vec{y} = 2\vec{a} + \frac{1}{2}\vec{b}$

$\vec{y} \begin{pmatrix} 2 \\ \frac{1}{2} \end{pmatrix}$ /3

$\vec{z} = -3\vec{a} + \vec{b}$

$\vec{z} \begin{pmatrix} -3 \\ 1 \end{pmatrix}$ /3

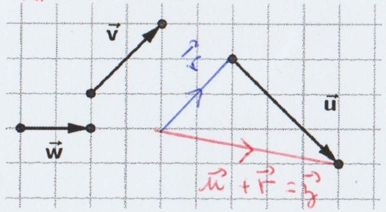
10# a) $\|\overrightarrow{AB}\| = \sqrt{(8+3)^2 + (-1+5)^2} = \sqrt{11^2 + 4^2}$

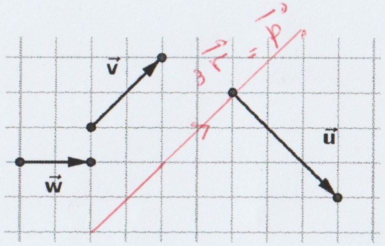
$= \sqrt{121 + 16}$ /2

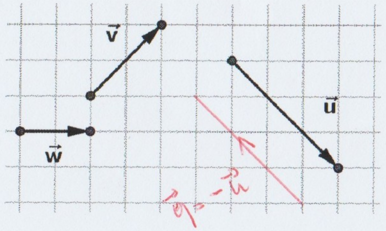
$= \sqrt{137}$

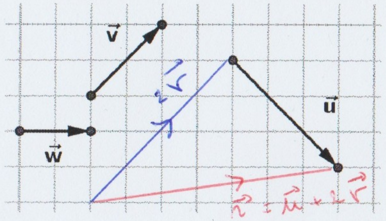
b) $\|\vec{u}\| = \sqrt{4^2 + (-7)^2} = \sqrt{16+49} = \sqrt{65}$

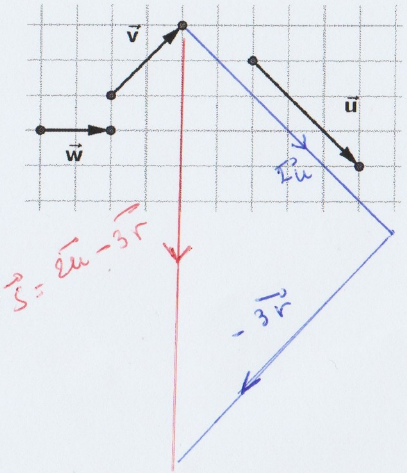
7#

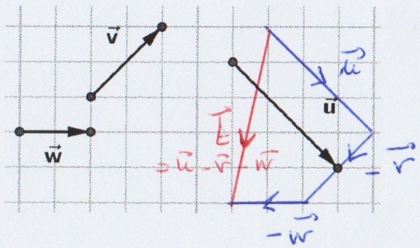


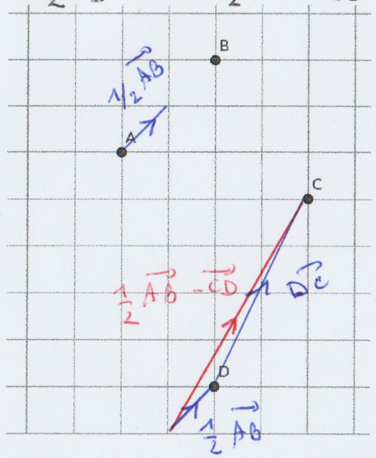



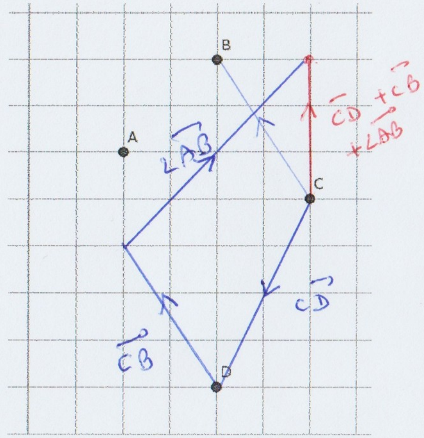




8#

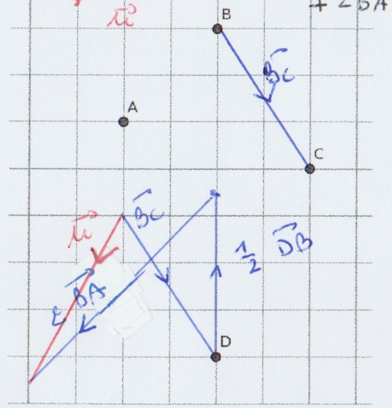
$\frac{1}{2}\vec{AB} - \vec{CD} = \frac{1}{2}\vec{AB} + \vec{DC}$



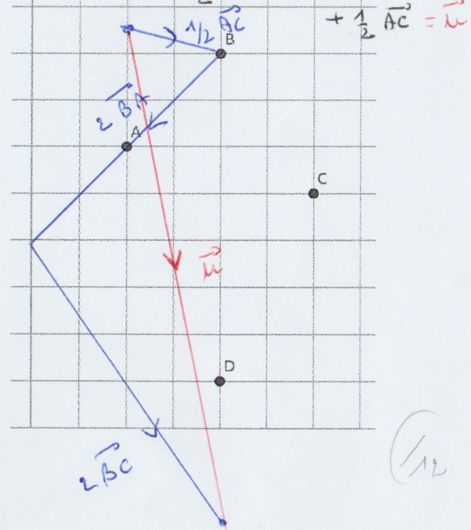

$\vec{CD} - \vec{BC} + 2\vec{AB} = \vec{CD} + \vec{CB} + 2\vec{AB}$




$\underbrace{\vec{BC} - \frac{1}{2}\vec{BD} - 2\vec{AB}}_{\vec{u}} = \vec{BC} + \frac{1}{2}\vec{DB} + 2\vec{BA}$




$2(\vec{BA} - \vec{CB}) - \frac{1}{2}\vec{CA} = 2\vec{BA} + 2\vec{BC} + \frac{1}{2}\vec{AC} = \vec{u}$

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