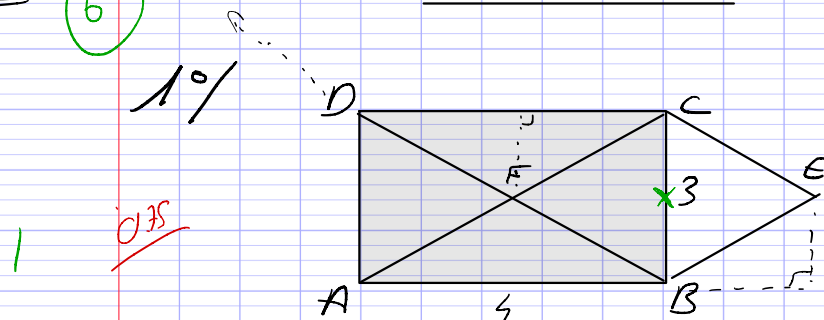


1650 (6) (4.5) \Rightarrow Exercice n°2



-0.5 \rightarrow E

calcul
+ 0.75

3.75 2° $\vec{BA} \cdot \vec{BE} = -4 \times 2 = -8$

x 0

$\vec{CF} \cdot \vec{CD} = 4 \times 2 = 8$

0.75/rep
1/rep

$\vec{AF} \cdot \vec{AB} = 4 \times 2 = 8$

$\vec{AB} \cdot \vec{BE} = 8$

x 0

$\vec{BF} \cdot \vec{DC} = -4 \times 2 = -8$

1800 (6) (4.5) \Rightarrow Exercice n°3

1° $\vec{AB} \cdot \vec{AC} = AB \times AC \times \cos(\angle BAC)$ 0.5
 $= 5 \times 4 \times \cos(45^\circ)$
 $= 10\sqrt{2}$ ✓

1.5 / ✓

2° $\vec{AB} \cdot \vec{AC} = \vec{AH} \cdot \vec{AC}$ 0.25
 $= AH \times AC$ 0.25
 $= 4 \times 7$
 $= 28$ 0.5 ✓

2 / ✓

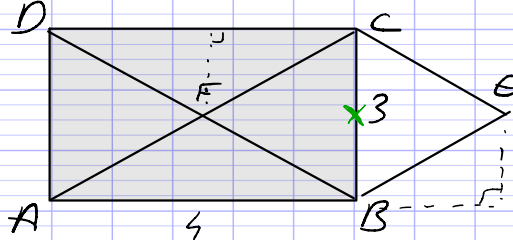
$HC = \sqrt{5^2 - 4^2}$
 $= 3$ 0.5

DS6 - Produit Scalaire

6

⇒ Exercice n°1

1°/



$$2°/ \vec{BA} \cdot \vec{BE} = -4 \times 2 = -8$$

$$\vec{CF} \cdot \vec{CD} = 4 \times 2 = 8$$

$$\vec{AF} \cdot \vec{AB} = 4 \times 2 = 8$$

$$\vec{AB} \cdot \vec{BE} = 8$$

$$\vec{BF} \cdot \vec{DC} = -4 \times 2 = -8$$

6

⇒ Exercice n°2

$$\begin{aligned} 1°/ \vec{AB} \cdot \vec{AC} &= AB \times AC \times \cos(\angle BAC) \\ &= 5 \times 4 \times \cos(45^\circ) \\ &= 10\sqrt{2} \end{aligned}$$

$$\begin{aligned} 2°/ \vec{AB} \cdot \vec{AC} &= \vec{AH} \cdot \vec{AC} \\ &= AH \times AC \\ &= 4 \times 7 \\ &= 28 \end{aligned}$$

$$\begin{aligned} // \quad HC &= \sqrt{5^2 - 4^2} \\ &= 3 \end{aligned}$$

$$3^{\circ} \quad \vec{AB} \begin{pmatrix} 3+3 \\ -1+2 \end{pmatrix} \Leftrightarrow \vec{AB} \begin{pmatrix} 7 \\ 1 \end{pmatrix} \quad \text{et} \quad \vec{AC} \begin{pmatrix} 1+3 \\ 2+2 \end{pmatrix} \Leftrightarrow \vec{AC} \begin{pmatrix} 4 \\ 4 \end{pmatrix}$$

$$\begin{aligned} \vec{AB} \cdot \vec{AC} &= xx' + yy' \\ &= 7 \times 3 + 1 \times 4 \\ &= 28 + 4 \\ &= 32 \end{aligned}$$

8

\Rightarrow Exercice n°3

$$1^{\circ} \quad \vec{AB} \cdot \vec{AC} = \vec{AB} \cdot \vec{AH} \\ = AB \times AH$$

$$2^{\circ} \quad AC^2 = AH^2 + HC^2$$

$$\begin{aligned} * \quad CB^2 &= HC^2 + HB^2 \\ &= HC^2 + (AB - AH)^2 \\ &= HC^2 + AB^2 - 2AB \times AH + AH^2 \end{aligned}$$

$$\begin{aligned} 3^{\circ} \quad \text{On a} \quad CB^2 &= HC^2 + AB^2 - 2AB \times AH + AH^2 \\ CB^2 &= HC^2 + AB^2 - 2\vec{AB} \cdot \vec{AC} + AH^2 \\ 2\vec{AB} \cdot \vec{AC} &= HC^2 + AB^2 + AH^2 - CB^2 \\ 2\vec{AB} \cdot \vec{AC} &= AC^2 + AB^2 - CB^2 \end{aligned}$$

$$\vec{AB} \cdot \vec{AC} = \frac{1}{2}(AB^2 + AC^2 - BC^2)$$

$$\begin{aligned} 4^{\circ} \quad 2\vec{AB} \cdot \vec{AC} &= AB^2 + AC^2 - BC^2 \\ BC^2 &= AB^2 + AC^2 - 2\vec{AB} \cdot \vec{AC} \\ BC^2 &= AB^2 + AC^2 - 2 \times AB \times AC \times \cos(\widehat{BAC}) \end{aligned}$$