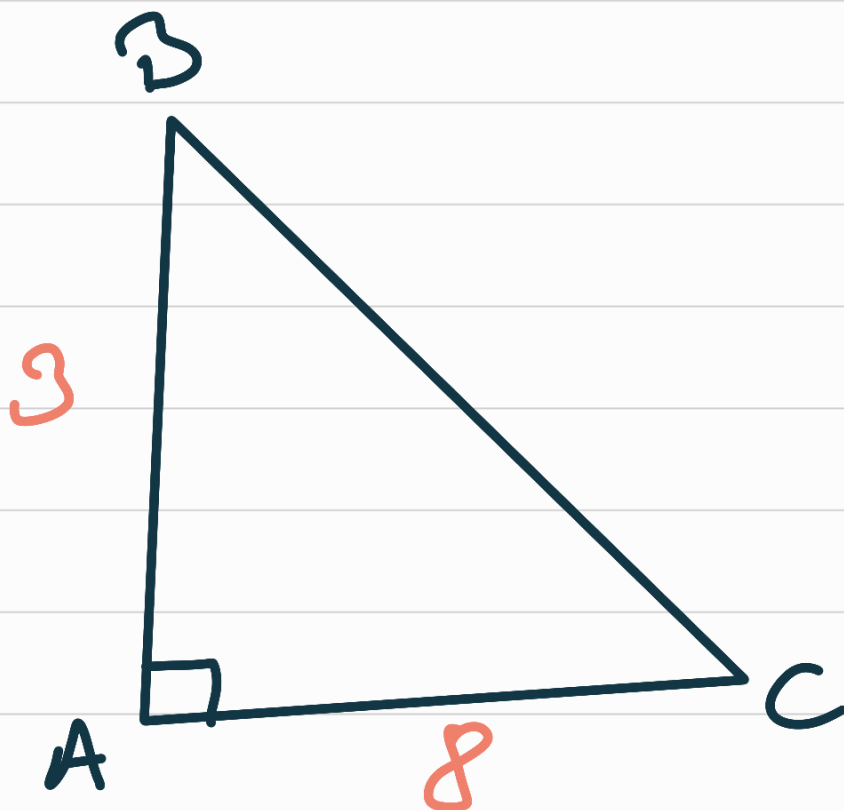


Produit Scalaire

exercice 1:



$$\vec{DA} \cdot \vec{DC}$$

$$= \vec{DA} \cdot (\vec{DA} + \vec{AC})$$

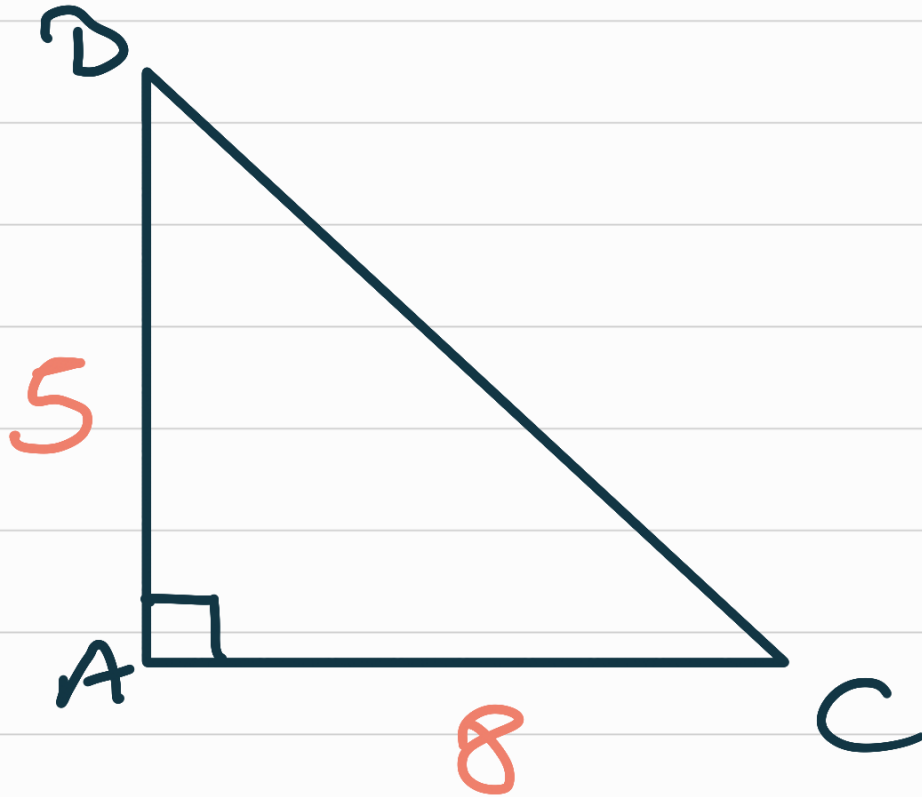
$$= \vec{DA} \cdot \vec{DA} + \vec{DA} \cdot \vec{AC} = 0$$

$$= 3A^2$$

$$= 3^2$$

$$= 9$$

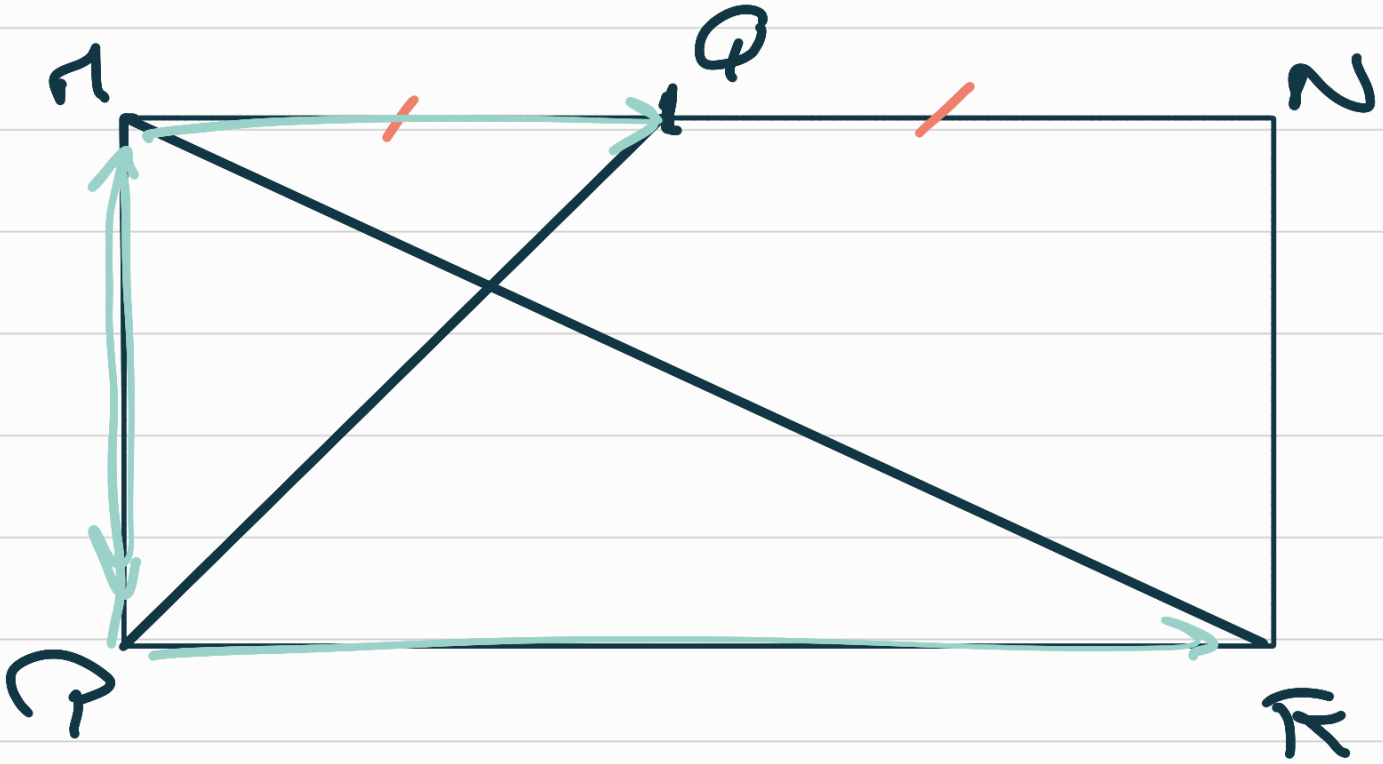
exercice :



$$\vec{BA} \cdot \vec{AC}$$

$$= 25$$

exercice 3 :



• $MP = 3$ et $MR = 8$

$$\vec{MP} \cdot \vec{PQ}$$

$$= \vec{MP} \cdot (\vec{PS} + \vec{SQ})$$

$$= \vec{MP} \cdot \vec{PS} + \underbrace{\vec{MP} \cdot \vec{SQ}}_{=0}$$

$$= -MP^2$$

$$= -3^2 = -9$$

$$\vec{MP} \cdot \vec{PQ}$$

$$= (\vec{MP} + \vec{PR}) \cdot (\vec{PN} + \vec{NQ})$$

$$= \vec{MP} \cdot \vec{PN} + \vec{MP} \cdot \vec{NQ} + \vec{PR} \cdot \vec{PN} + \vec{PR} \cdot \vec{NQ}$$

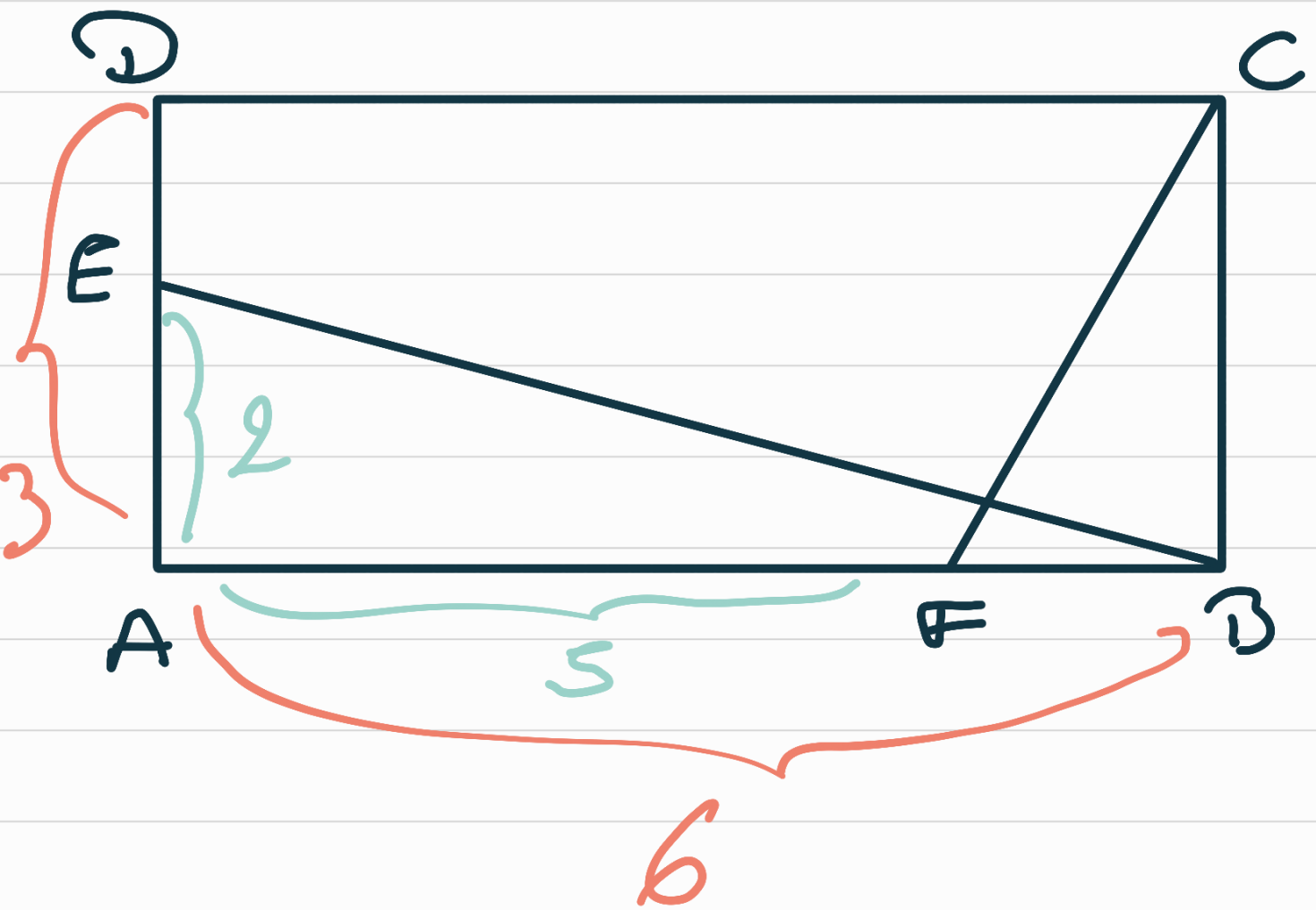
$$= -MP^2 + 0 + 0 + PR \times PQ$$

$$= -3^2 + 8 \times 4$$

$$= -9 + 32$$

$$= 23$$

exercice 8 :



$$\begin{aligned} & \vec{FC} \cdot \vec{BE} \\ &= (\vec{FB} + \vec{BC}) \cdot (\vec{BA} + \vec{AE}) \\ &= \vec{FB} \cdot \vec{BA} + \vec{FB} \cdot \vec{AE} + \vec{BC} \cdot \vec{BA} \\ & \quad + \vec{BC} \cdot \vec{AE} \end{aligned}$$

$$= - \vec{FB} \times \vec{BA} + 0 + 0 + \vec{BC} \times \vec{AE}$$

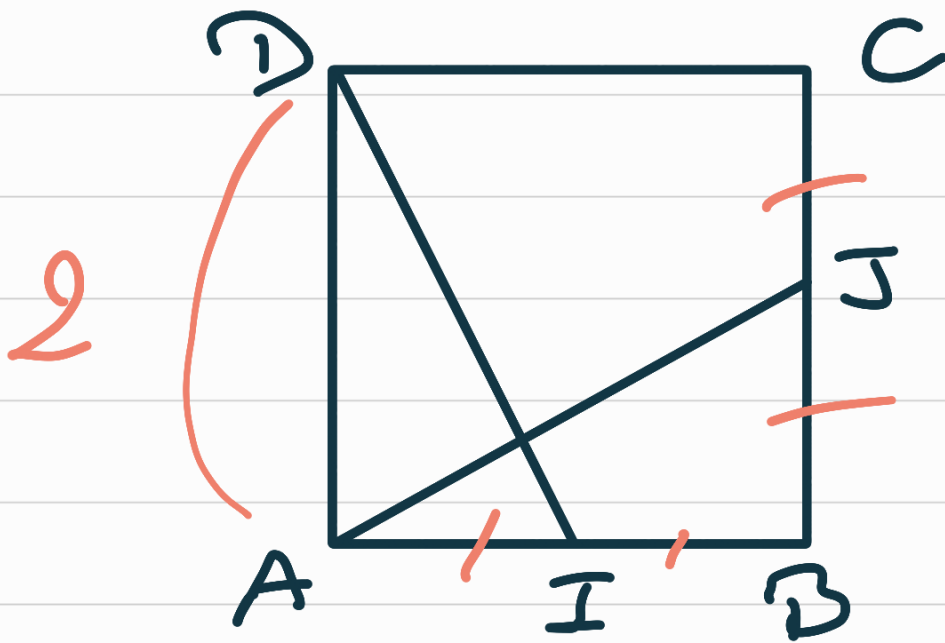
$$= - 1 \times 6 + 3 \times 2$$

$$= - 6 + 6$$

$$= 0$$

donc les vecteurs $\vec{FC}$ et $\vec{BE}$ sont orthogonaux, et les droites (FC) et (BE) sont perpendiculaires.

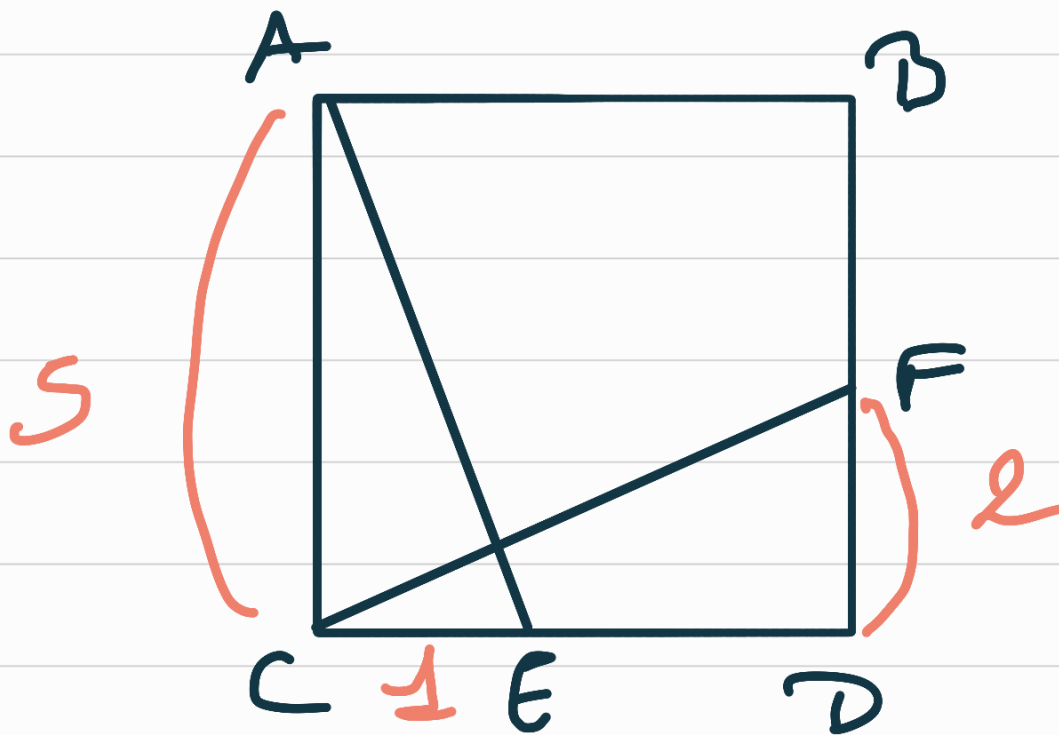
exercice :



$$\begin{aligned} & \vec{AJ} \cdot \vec{ID} \\ &= (\vec{AB} + \vec{BJ}) \cdot (\vec{IA} + \vec{AD}) \\ &= \vec{AB} \cdot \vec{IA} + \vec{AB} \cdot \vec{AD} + \vec{BJ} \cdot \vec{IA} \\ & \quad + \vec{BJ} \cdot \vec{AD} \\ &= -2 \times 1 + 0 + 0 + 1 \times 2 \\ &= -2 + 2 = 0 \end{aligned}$$

donc les vecteurs $\vec{AJ}$ et $\vec{ID}$ sont orthogonaux et les droites (AJ) et (ID) sont perpendiculaires.

exercice :



$$\vec{CF} \cdot \vec{EA}$$

$$= (\vec{CD} + \vec{DF}) \cdot (\vec{EC} + \vec{CA})$$

$$= \vec{CD} \cdot \vec{EC} + \vec{CD} \cdot \vec{CA} + \vec{DF} \cdot \vec{EC} + \vec{DF} \cdot \vec{CA}$$

$$= -5 \times 1 + 0 + 0 + 2 \times 5$$

$$= -5 + 10$$

$$= 5$$