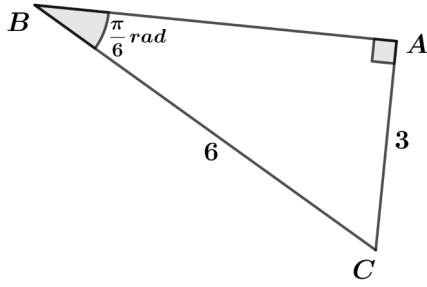


PRODUIT SCALAIRE E01C

EXERCICE N°5 Facile !

1) Déterminer $\overrightarrow{CB} \cdot \overrightarrow{CA}$.

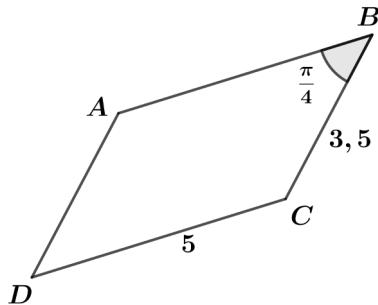


$$\widehat{(\overrightarrow{CA}; \overrightarrow{CB})} = \pi - \left(\frac{\pi}{2} + \frac{\pi}{6} \right) = \frac{\pi}{3} \text{ rad}$$

Donc :

$$\begin{aligned} \overrightarrow{CB} \cdot \overrightarrow{CA} &= AC \times BC \times \cos\left(\frac{\pi}{3}\right) \\ &= 3 \times 6 \times \frac{1}{2} \\ \boxed{\overrightarrow{CB} \cdot \overrightarrow{CA} = 9} \end{aligned}$$

2) Déterminer $\overrightarrow{AD} \cdot \overrightarrow{AB}$.



$ABCD$ est un parallélogramme.

$ABCD$ étant un parallélogramme :
 $AB = CD = 5$; $AD = BC = 3,5$ et
 $\widehat{(\overrightarrow{AD}; \overrightarrow{AB})} = \pi - \frac{\pi}{4} = \frac{3\pi}{4} \text{ rad}$

Donc :

$$\begin{aligned} \overrightarrow{AD} \cdot \overrightarrow{AB} &= AD \times AB \times \cos\left(\frac{3\pi}{4}\right) \\ &= 5 \times 3,5 \times \left(-\frac{1}{2}\right) \end{aligned}$$

$$\boxed{\overrightarrow{AD} \cdot \overrightarrow{AB} = -8,75}$$