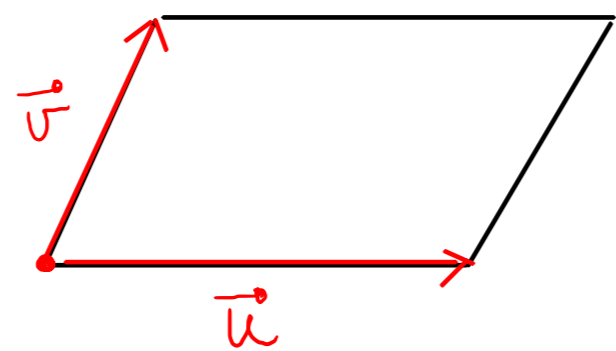


Aire d'un parallélogramme

Soit ABCD un parallélogramme



$$\text{Aire} = \left| \det(\vec{u}; \vec{v}) \right| \quad \leftarrow \text{valeur absolue}$$

Exemple

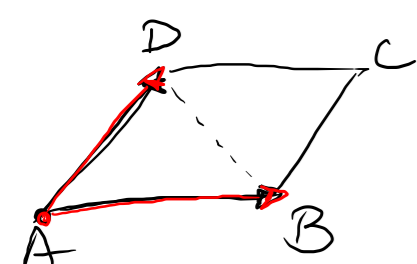
$$A(2; -1) \quad B(0; 3) \quad C(-2; -2) \quad D(0; -6)$$

ABCD est-il un //gramme?

$$\vec{AB} = \begin{pmatrix} 0 - 2 \\ 3 + 1 \end{pmatrix} = \begin{pmatrix} -2 \\ 4 \end{pmatrix}$$
$$\vec{DC} = \begin{pmatrix} -2 - 0 \\ -2 + 6 \end{pmatrix} = \begin{pmatrix} -2 \\ 4 \end{pmatrix}$$

= ✓

Calculer l'aire : $\mathcal{A} = \mathcal{A}$



$$\det(\vec{AB}; \vec{AD}) = \begin{vmatrix} -2 & -2 \\ 4 & -5 \end{vmatrix} = -2 \cdot (-5) - 4 \cdot (-2) = 10 + 8 = 18$$

$$\vec{AD} = \begin{pmatrix} 0 - 2 \\ -6 + 1 \end{pmatrix} = \begin{pmatrix} -2 \\ -5 \end{pmatrix}$$

$$\Rightarrow \mathcal{A} = 18 u^2 \quad (u = \text{unité})$$

$$\text{Calculer l'aire du } \triangle ABD = \frac{\mathcal{A}}{2} = 9 u^2$$