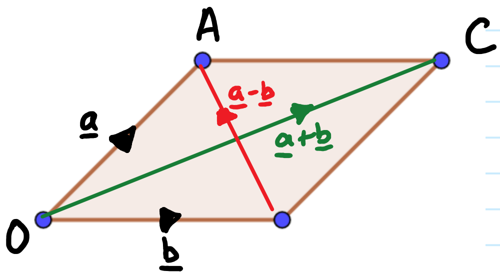
OABC is a parallelogram.

$\overrightarrow{OA} = \mathbf{a} \quad \overrightarrow{OB} = \mathbf{b} \quad \overrightarrow{OC} = \mathbf{a} + \mathbf{b}$

Given that $(\mathbf{a} + \mathbf{b}) \cdot (\mathbf{a} - \mathbf{b}) = 0$ what can you conclude



$$(\underline{a}+\underline{b})\cdot(\underline{a}-\underline{b}) = 0$$

$$\underline{a}\cdot\underline{a} + \underline{a}\cdot -\underline{b} + \underline{b}\cdot\underline{a} + \underline{b}\cdot -\underline{b} = 0$$

$$|\underline{a}|^2 - \underline{a}\cdot\underline{b} + \underline{b}\cdot\underline{a} - |\underline{b}|^2 = 0$$

$$|\underline{a}|^2 - |\underline{b}|^2 = 0$$

$$|\underline{a}|^2 = |\underline{b}|^2$$

$$|\underline{a}| = |\underline{b}|$$

sides of shape are equal $\Rightarrow$ Rhombus