

Gramm-Schmidt

BON

Base  $(a_1, \dots, a_n) \rightsquigarrow$  Base ortho.  $(f_1, \dots, f_n)$   
 $\text{Vect}(a_1, \dots, a_k) = \text{Vect}(f_1, \dots, f_k)$

$$f_1 = a_1$$

$$f_2 = a_2 - \alpha f_1 \quad \text{avec} \quad \langle f_1, f_2 \rangle = 0$$

$$\rightsquigarrow \langle f_1, a_2 - \alpha f_1 \rangle = 0$$

$$\langle f_1, a_2 \rangle - \alpha \langle f_1, f_1 \rangle = 0$$

$$\alpha = \frac{\langle f_1, a_2 \rangle}{\|f_1\|^2}$$

$$f_3 = a_3 - \alpha_1 f_1 - \alpha_2 f_2$$

on veut

$$\langle f_3, f_1 \rangle = 0 \Rightarrow \langle a_3, f_1 \rangle - \alpha_1 \langle f_1, f_1 \rangle$$

$$- \alpha_2 \langle f_2, f_1 \rangle = 0$$

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0 car  $f_1 \perp f_2$

$$\langle a_3, f_1 \rangle - \lambda_1 \langle f_1, f_1 \rangle = 0 \dots$$