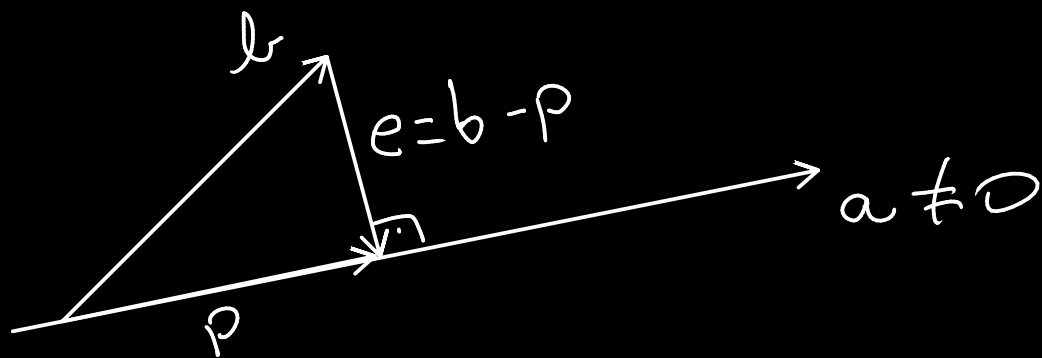


Monitória 1, Semana 7.



$$p = \phi \cdot a, \phi \in \mathbb{R} \quad \text{Acho } \phi!$$

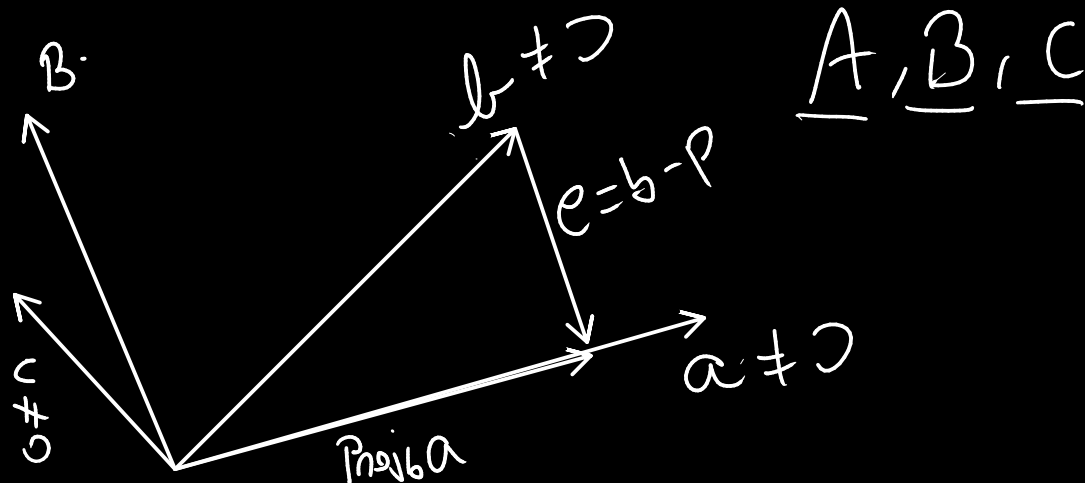
$$\langle a, e \rangle = 0 \Leftrightarrow a^T(b - p) = a^T(b - \phi \cdot a) = 0$$

$$\Leftrightarrow -\phi \cdot a^T a + a^T b = 0 \Leftrightarrow a^T b = \phi \cdot a^T a$$

$$\frac{a^T b}{a^T a} = \phi$$

$$p = \underbrace{\frac{a^T b}{a^T a}}_{\in \mathbb{R}} \cdot a = \text{Proj}_b a$$

Gram-Schmidt:



$$a = A$$

$$b - \text{Proj}_b a = B$$

$$C - \text{Proj}_c B - \text{Proj}_c A = C$$

$$\begin{aligned} \tilde{a}^T (b - \text{Proj}_b a) &= 0 \\ a^T b - a^T a \cdot \frac{a^T b}{a^T a} &= 0 \end{aligned}$$

São ortogonais!

Passo 2:

$$\frac{A}{\|A\|}, \frac{B}{\|B\|}, \frac{C}{\|C\|}$$

$$\langle A, B \rangle = 0$$

$$\langle A, C \rangle = 0$$

$$\langle B, C \rangle = 0$$

$$\left\| \frac{1}{\|A\|} \cdot A \right\| = \frac{1}{\|A\|} \cdot \|A\| = 1$$

