

Teste
06 de Maio de 2014

7:00h e 9:00h

1. Sejam $\mathbf{u}_1, \mathbf{u}_2, \dots, \mathbf{u}_k$ vetores ortogonais não nulos. Considere $\mathbf{u} \notin \langle \mathbf{u}_1, \mathbf{u}_2, \dots, \mathbf{u}_k \rangle$. Mostre que o vetor

$$\mathbf{v} = \mathbf{u} - \frac{\langle \mathbf{u} | \mathbf{u}_1 \rangle}{\langle \mathbf{u}_1 | \mathbf{u}_1 \rangle} \mathbf{u}_1 - \frac{\langle \mathbf{u} | \mathbf{u}_2 \rangle}{\langle \mathbf{u}_2 | \mathbf{u}_2 \rangle} \mathbf{u}_2 - \dots - \frac{\langle \mathbf{u} | \mathbf{u}_k \rangle}{\langle \mathbf{u}_k | \mathbf{u}_k \rangle} \mathbf{u}_k$$

é ortogonal a \mathbf{u}_j para $j = 1, \dots, k$.