MATH 425 Lecture 16

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Theorem

: Let $\{u_1, u_2, ..., u_p\}$ be an orthogonal basis for a subspace W. $\forall y \in W$ the linear combination:

$$y = c_1u_1 + c_2u_2 + ... + c_pu_p$$

is given by the equation:

$$c_i = \frac{y \cdot u_i}{u_i \cdot u_i} = \frac{y \cdot u_i}{||u_i||^2}$$