

Math 2600/5600 - Linear Algebra - Fall 2015

Extra Problems for Chapter 6

X12. (Algebraic derivation of $\text{proj}_x y$) Prove algebraically that if $x \neq 0$ then $y - \alpha x \perp x$ if and only if $\alpha = \langle y, x \rangle / \langle x, x \rangle$.

X13. Find a basis for $\{(1, 2, 3, 4), (-1, 0, 1, 0)\}^\perp$ in \mathbf{R}^4 (by solving a system of linear equations).

X14. Prove that for any subset S of V , $S^\perp = (\text{span } S)^\perp$.