

Math 464 / Name: X
Midterm
Fall '01
MMI

(a) find the matrix P of orthogonal projection onto the subspace $V = \text{span}\{q_1, q_2\}$.

If $b = \begin{pmatrix} 3 \\ 2 \\ 1 \end{pmatrix}$ find the orthogonal projection $p = Pb$ onto V . Check that $(I - P)b \in V^\perp$.

(b) Find ~~the~~ q_3 so that $Q := (q_1, q_2, q_3)$ is orthogonal.