

UNIVERSITY OF HOUSTON

NOTES

COSC 6364
Advanced Numerical Analysis

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Chapter 1

Matrix-Vector Multiplication

We interpret a matrix-vector multiplication $\mathbf{b} = A\mathbf{x}$ as follows: if $\mathbf{b} = A\mathbf{x}$, then \mathbf{b} is a linear combination of columns of A .

Chapter 2

Practice Quizzes

Quiz 1

1. Given a matrix that is both triangular and unitary, is it non-diagonal?
2. Can the absolute value of an eigenvalue of a unitary matrix be 1?
3. If W is an arbitrary nonsingular matrix, then is the function $\|\cdot\|_w$ defined by $\|\mathbf{x}\|_w = \|W\mathbf{x}\|$ (weightd norm) a vector norm?
4. If E is an outer product $E = \mathbf{u}\mathbf{v}^*$, then $\|E\|_2 = \|\mathbf{u}\|_2 \|\mathbf{v}\|_2$. Is the same true for the Frobenius norm, i.e., $\|E\|_F = \|\mathbf{u}\|_F \|\mathbf{v}\|_F$?