MATH 2418

Exam 2 Reviews

4.1

Orthogonality

**Book**

Chapter main points

1. Orthogonal vectors have vTw = 0. Then ||v||2 + ||w||2 = ||v + w||2 = ||v - w||2
2. Subspaces V and W are orthogonal when vTw = 0 for every v in V and every w in W
3. The row space of A is orthogonal to the nullspace. The column space is orthogonal to the left nullspace
4. One space of dimensions adds to r + (n – r) = n. The other is r + (m – r) = m
5. Row space and nullspace are orthogonal complements
   1. Every x in Rn splits into xrow + xnull
6. Suppose a space S has dimension d. Then every basis for S consists of d vectors
7. If d vectors in S are independent, they span S. If d vectors space S, they are independent.

Facts

(E32E31E21) A = U **--->** (E21-1E31-1E32-1) A = U **--->** A = LU

Rules

**Class**

**Recitation**