MATH 2418

Exam 2 Reviews

3.4

Independence, basis and dimension

**Book**

Chapter main points

1. Indepenent columns of A: The only solution to Ax = 0 is x= 0.
2. Independent vectors: the only zero combination of c1v1+c2v2+…+ckvk = 0
3. A matrix with m < n has dependent columns: atleast n – m free variables / special solutions
4. The vectors v1…..vk span the space S if S = all combinations of v’s
5. The vectors v1…..vk are a basis for S if they are independent and they span S
6. The dimensions of a space S is the number of vectors in the basis
7. If A is 4 by 4 and invertible, its columns are a basis for R4. The dimension of R4 is 4

Facts

Rules

**Class**

**Recitation**