Linear Algebra
Math 254
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Review for second exam
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Be able to define and use the following terminology

- linear combination, span, linearly independent.

- subspace of a vector space, basis of a vector space.

- column space, row space and nullspace of a matrix.

Determinants

- Be able to compute the determinant of a small matrix (2×2 or 3×3), or of a matrix that has lots of zeros in it.

- Know that you can expand along any row or any column. Be careful about the signs!

- Know the determinants of the elementary matrices—those used to do row operations.

- Know the main theorems: the determinant of a product of matrices, the determinant of the inverse of a matrix. See exercises 3.2 # 15-20, 27, 28, 37-40.

- Be able to find the area of a parallelogram. (3.3 #19-24).

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Know the theorems

- Unique representatio theorem (4.4 Thm 7).

- The inverse matrix theorem.

- The basis-dimension theorems (4.4 Thm 10-12, 4.5 #19-20, 29-30).

- See exercises 4.2 #25-26; 4.3 #21-24.

Bases for vector spaces

- Let A be a matrix. Be able to compute a basis for the nullspace, row space and column space of A.

- Be able to compute and use coordinate change matrices. See 4.4 #1-12; 4.7 #1-11.