

Math 2270-2
Review sheet for exam 1
Friday Sept 21, 2001

There will be a problem session Saturday Sept 22, from 11 a.m. to 1 p.m., in JWB 208.

The exam will cover chapters 1-3.3, plus the affine map concepts we needed to draw fractals.

Chapter 1:

- *linear systems
- *geometric meaning
- * $\text{rref}(A | b)$ and $\text{rref}(A)$ to determine solution characteristics
[economics applications will not be on exam.]

Chapter 2 plus affine maps:

- *linear transformations (concrete and abstract definitions)
- *affine transformations (linear composed with translation)
- *geometric properties (e.g. parallel lines get mapped to parallel lines)
- *geometric transformations
- *inverses
- *products
- *matrix algebra

Chapter 3: subspaces of \mathbb{R}^n

- *subspace
- *image, kernel
- *linear dependence and independence
- *span
- *possible subspaces of \mathbb{R}^n
- *basis, how to find bases
- *dimension
- *theorem about $\dim(\ker(f)) + \dim(\text{image}(f)) = n$.

Exam will be a mixture of computational and theoretical - the practice exam gives an indication of the kinds of questions which I ask.