M693 Geometric Data Analysis
Problem Set One

Thursday, February 7, 2002

1 Theory

1. Text problem 1.5 (See page 346 for definitions of injective, surjective and bijective).
2. Text problem 2.4
3. Text problem 2.9
4. Text problem 2.12
5. Text problem 2.15
6. Text problem 2.16
7. Text problem 2.19

2 Computing

1. Text problem 2.32
2. Write a code to generate 1000 random numbers contained in the unit circle. Apply several random matrices to this data and describe your results in the terminology of bases and change of bases. How do your results differ if the multiplying matrix is constrained to be orthogonal?