MATH 534: DIFFERENTIABLE MANIFOLDS

Final Exam

May 24, 2002: 15.30-17.30

QUESTIONS

1. **(a)** Give the definition of Lie groups. **(b)** Prove that $GL(n;\mathbf{R})$ is a Lie group.

2. **(a)** Give the definitions of manifolds wandering at a point and spaces of constant curvature **(b)** Prove that an m-dimensional ($m > 3$) oriented manifold everywhere wandering is a space of constant curvature.

3. **(a)** Give the definitions of complex and almost complex manifolds.
(b) Prove that a complex manifold is naturally an almost complex manifold.