Problem Set 7
Econ 4113

Instructor: Andy McLennan
Due: November 9, 2004

In your answers to the problems below you may apply any result developed in the slides for Lecture 6.

**Problem 1:** Problem 21.7 (p. 516) of Simon and Blume.

**Problem 2:** Suppose that $C \subset \mathbb{R}^m$ is convex and $f, g : C \rightarrow \mathbb{R}$ are convex functions. Prove that $f + g$ is also convex.

**Problem 3:** Suppose $a$ and $b$ are positive numbers. Prove that

$$\{(x, y) \in \mathbb{R}^2 : ax^2 + by^2 \leq 1\}$$

is convex.