Problem Set 4
Econ 4113
Instructor: Andy McLennan
Due: February 19, 2004

Problem 1: Suppose that $A$ is an $m \times m$ matrix that is a differentiable function of a single variable $t$. Assume that $A(0)$ is invertible. Obtain a formula for $\frac{dA^{-1}}{dt}(0)$ by differentiating the identity $A(t) \cdot A(t)^{-1} = I_m$. Suppose that $B$ is another $m \times m$ matrix valued function of $t$. Compute $\frac{d(A^{-1}B)}{dt}(0)$ and $\frac{d(BA^{-1})}{dt}(0)$.

Problem 2: Do Exercise 12.5.2 (p. 409) from Chiang.

Problem 3: Do Exercise 4.3 from Dixit.