Homework 1 – due Feb 20
14.124 Spring 2003

Graded problems:

1. Problem 6.C.1 (in MWG).

2. Problem 6.C.13

3. Let $X > 0$ be a random monetary payoff to person A. Suppose B is willing to contract with A on sharing risk. Let $s(x)$ be the payoff to B and $x - s(x)$ the payoff to A if the outcome of X is x. What form should $s(x)$ take if A and B have logarithmic utility functions: $U_A(y) = \log(ay+b)$ and $U_B(y) = \log(cy+d)$, where a, b, c, d are all strictly positive constants?

Additional problem (checked but not counting towards grade)

4. Problem 6.C.2 (part a only).

5. An agent has wealth W and has to decide how much of it to invest in a risky project that returns x per dollar invested, where $Ex > 0$. The balance is invested in a riskless asset that returns y per dollar invested, where $Ex > y > 0$.

    a. Show that if the agent's utility function is $u(m) = - \exp\{-rm\}$, where m is final money holdings and r is the coefficient of risk aversion, then the amount the agent will invest in the risky asset is independent of W.

    b. Show that if in part (a) above, the agent's utility function is instead $u(m) = \log(m)$, then the agent will invest a constant fraction of wealth in the risky project.