PROBLEM SET 3   **DUE 2 OCTOBER**

1. Suppose that the typical person in the economy has the following money demand
   function: $MD = Y(.5 – i)$, where MD is money demand, Y is money income, and i is
   the interest rate (expressed so that a 10 percent interest rate is $i = .1$).

   (a) If an individual has an income of $50,000, and the interest rate is .05, how much
       money does that person demand?
   (b) Let W be the individual's total wealth. What is his or her demand function for bonds?
   (c) Suppose that the money supply is $20,000 per capita. What is the interest
       rate?(Derive this result two ways: by looking at the supply and demand for money,
       and the supply and demand for bonds).
   (d) Suppose that the central bank carries out an open-market operation that increases the
       money supply by 10 percent. What happens to the interest rate?
   (e) Suppose that an economic boom raises income by 10 percent, but the central bank
       does not increase the money supply. What happens to the interest rate?

2. In the United States, the public holds approximately 30 cents of currency for every
   dollar of deposits; banks hold about 10 cents of reserves for every dollar of deposits.

   (a) Assuming these ratios were exactly 0.3 and 0.1, derive the U.S. money multiplier.
   (b) Suppose, given these ratios, that the Federal Reserve were to increase the US money
       supply by a $1 billion open-market purchase of bonds. Show the initial effect on the
       quantity of deposits; then the second-round impact; and explain how continuing this
       process leads to the money multiplier.
   (c) Suppose that the Fed decided that reserves were too low, and required banks to hold
       15 percent of their deposits as reserves. What would happen to the money supply?
   (d) Some experts think that the Y2K problem will lead to a sudden failure of ATMs,
       credit card readers, and other financial apparatus at the end of next year. If this
       happens – or if people expect it to happen – what effect would it have on the money
       supply and the interest rate?