Question 1: Phillips Curve

Suppose that the Phillips curve in an economy is given by the equation $\pi_t - \pi^e_t = 0.18 - 3u_t$, where $\pi^e_t = \theta \pi_{t-1}$. Further, suppose that in period t-1 the unemployment rate is equal to the natural rate, and the inflation rate is 0 percent.

a) What is the natural rate of unemployment in this economy?
b) Suppose that beginning in period t, the authorities bring the unemployment down to 5% and keep it there indefinitely. Determine the inflation rate in periods t,t+1,t+2, and t+3 when $\theta = 0$. Then do the same for $\theta = 1$.

c) For which of the two values of θ does $u_t < u_n$ imply an acceleration of the price level (a continually increasing rate of inflation)?

d) Suppose that the authorities do not know the natural rate of unemployment. Can they find out what it is? How?

Question 2: open economy

Suppose that, starting from an initial equilibrium at the natural level of output, a country REVALUES its currency (i.e. makes its currency more expensive in terms of foreign currency).

a) Draw an AD-AS diagram illustrating the short run impact of this policy

b) In the short run, what happens to the real exchange rate, net exports, and output?

c) After all the adjustments have taken place, indicate the final long run equilibrium of the economy on your diagram

d) In the long run, what happens to the real exchange rate, net exports, and output (compared to the initial equilibrium)?

Question 3: growth

Suppose that the production function in an economy is given by $Y = K^{1/2}N^{1/2}$, and both the saving rate (s) and the depreciation rate (δ) are equal to 0.10.

a) What is the steady state level of capital per worker?

b) What is the steady state level of output per worker?

c) If the depreciation rate increases to 0.20, what will be the new steady state levels of capital per worker and output per worker?