

1. *Recession.* Suppose the economy begins with a labor supply of $\mathcal{L} = 10,000$ and a production function of $Y = f(L) = L^{1/4}$.

- (a) Graph the labor market and find the equilibrium real wage for this economy (assuming the labor market clears). Note that you will have to find the equation for the labor demand curve to do this.
- (b) Suppose that government statistics show a 4% unemployment rate at the time period corresponding to part (a). Since the labor market clears, how could this be?
- (c) Now suppose that a drop in aggregate demand occurs, resulting in a parallel shift of labor demand. Wages are completely sticky, and unemployment rises to 10%. Show the situation on a graph and find the equation of the new labor demand curve. (Remember that there was already 4% unemployment, so there must be *more* than 10,000 workers in the economy.)
- (d) Recall that Okun's Law is

$$\frac{Y^f - Y}{Y} \approx 2(U - U^*)$$

Assuming that Okun's Law holds, draw an ADI/SRIA diagram of the economy, showing the situation in parts (a) and (c). Make sure to find and label the numerical levels of GDP and explain how you did this.

- (e) If the central bank surprises people by raising the inflation rate, explain and show what happens to the economy on both the SRIA diagram and a diagram of the money market.