1. Box 4.4 of the text discusses the effect of minimum-wage laws on the natural unemployment
    rate. In this problem we explore this relationship in more detail.

    a. The minimum wage in Portland increased in July, 2017, to $11.25 per hour; the
        distribution of average hourly earnings for Portland Metro Area workers in 2016 had the
        following properties:

Mean	$25.94
10th percentile	$10.53
25th percentile	$13.33
Median (50th percentile)	$19.89
75th percentile	$31.36
90th percentile	$48.41

        Given the actual wage distribution, is the minimum wage relevant for the Portland labor
        market? In what ways?

    b. Consider a model of a segmented labor market, in which there are two distinct markets
        for, respectively, skilled and unskilled labor. Suppose that the market-clearing wage is
        lower than the minimum wage in the unskilled market is but higher in the skilled market.
        Draw diagrams of the two markets noting the market-clearing wage and the minimum
        wage in both.

    c. In the short run, there is no spillover in labor supply between markets because it takes
        time to acquire skills and skilled workers would not choose to work at unskilled jobs.
        However, there may be spillovers in labor demand. How would the presence of the
        minimum wage affect the skilled labor market if skilled and unskilled workers are
        substitutes in production? What if they are complements?

    d. In the long run, workers choose whether or not to acquire skills. Why might the presence
        of the minimum wage discourage skill acquisition? Why might the presence of the
        minimum wage encourage skill acquisition? Show the effects on the skilled and unskilled
        labor markets in each case: where the discouraging effect dominates and where the
        encouraging effect dominates.

    e. Based on your answers to the previous parts of this question, why do labor unions
        (whose members are usually skilled workers) lobby in favor of increases in the minimum
        wage?

f. Starting in 2016, Oregon has a higher minimum wage for the Portland area than for the rest of the state. (A Reed alum heads an NGO that worked on this topic and has interesting data for anyone interested in pursuing a thesis related to this.) Why would this make sense? How would this differential affect the impacts of the minimum wage in Portland and outside?

2. Suppose that you are tasked with estimating the natural rate of unemployment for Oregon. Why might the natural rate in Oregon differ from that in other states or the aggregate United States? How would you go about estimating the Oregon natural rate? (I don't expect too much detail about statistical or econometric methods. Focus on the general approach you think is appropriate and the variables that you might consider.) Once you got an estimate, how would be it be useful?

3. The long-run analysis in Chapter 5 puts the Cambridge "k" in a central role in money demand.
    a. In what units is k measured? (Be careful here.)
    b. Explain (see footnote 4) how k is related to "money velocity."
    c. What are the units of velocity?
    d. The derivation of equation (5.5) is based on the assumption that k (and velocity) is constant. Given the pace of financial innovation in recent decades—introduction, spread, and interconnection of ATMs, development of phone-based and later online banking, etc.—would you expect that k would generally increase or decrease over time?
    e. Given your answer to the previous question, how would this affect the steady-state rate of inflation, given the rates of money growth and real GDP growth?