CHAPTER 7

**Aggregate Demand and Aggregate Supply**

Chapter 7 presents a macro model of the economy that is based on aggregate demand and aggregate supply. This model can be used to explain real domestic output and the level of prices at any point in time and to understand what causes output and the price level to change.

The ***aggregate demand*** ***(AD) curve*** is downsloping. Changes in the price level have an inverse effect on the level of spending by domestic consumers, businesses, government, and foreign buyers, and thus on real domestic output, assuming *other things equal*. This change would be equivalent to a movement along an existing aggregate demand curve: A lower price level increases the quantity of real domestic output demanded, and a higher price level decreases the quantity of real domestic output demanded.

The aggregate demand curve can increase or decrease because of a change in one of the nonprice level ***determinants of aggregate demand***. The determinants include changes affecting consumer, investment, government, and net export spending. Underlying each demand determinant are various factors that cause the determinant to change and aggregate demand to increase or decrease.

The **aggregate supply (AS) curve** shows the relationship between the output of producers and the price level, but it varies based on the time horizon and variability of input and output prices. In the immediate short run, the aggregate supply curve is horizontal at one price level because input prices and output prices are inflexible or fixed. In the short run, however, the upsloping shape of the aggregate supply curve reflects what happens to per-unit production costs as real domestic output increases or decreases. In the long run, the aggregate supply curve is vertical because input and output prices are fully flexible, so a change in the price level does not change resource utilization at the full-employment level of output.

An assumption is also made that other things are equal when one moves along an aggregate supply curve. When other things change, the aggregate supply curve can shift. The ***determinants of aggregate supply*** include changes in input prices, changes in productivity, and changes in the legal and institutional environment for production. There are underlying factors that cause these supply determinants to change, and aggregate supply to increase or decrease.

The intersection of the aggregate demand and aggregate supply curves determines ***equilibrium real output*** and the ***equilibrium price level***. Assuming that the determinants of aggregate demand and aggregate supply do not change, there are pressures that will tend to keep the economy at equilibrium. If a determinant changes, then aggregate demand, aggregate supply, or both, can shift.

When ***aggregate demand increases***, this will lead to changes in equilibrium real output and the price level. If the economy is operating at full employment, the increase in AD will result in ***demand-pull inflation***. There can also be a ***decrease in aggregate demand***, but it may reduce output and not the price level. In this case, there can be downward price inflexibility for several reasons.

***Aggregate supply may increase or decrease.*** An increase in aggregate supply gives a double bonus for the economy because the price level falls, and output and employment increase. Conversely, a decrease in aggregate supply doubly harms the economy because the price level increases, and output and employment fall, and thus the economy experiences ***cost-push inflation***.

The aggregate demand–aggregate supply model is an important framework for determining the equilibrium level of real domestic output and prices in an economy. The model will be used extensively throughout the next few chapters to analyze how different parts of the economy function.

* **CHECKLIST**

When you have studied this chapter you should be able to

* Define aggregate demand.
* Describe the characteristics of the aggregate demand curve.
* Identify the four major spending determinants of aggregate demand.
* Explain the four factors that can change the consumer spending determinant.
* Explain the two factors that can change the investment spending determinant.
* Explain what changes the government spending determinant.
* Explain the two factors that can cause changes in the net export spending determinant.
* Discuss how the four major spending determinants of aggregate demand (and their underlying factors) can increase or decrease aggregate demand.
* Define aggregate supply in the immediate short run, the short run, and the long run.
* Explain why the aggregate supply curve in the immediate short run is horizontal.
* Explain why the aggregate supply curve in the short run is upsloping.
* Explain why the aggregate supply curve in the long run is vertical.
* Identify the three major determinants of aggregate supply.
* Describe two factors that change the input prices determinant.
* Explain what changes the productivity determinant.
* Identify two factors that change the legal-institutional environment determinant.
* Explain how the three major determinants of aggregate supply (and their underlying factors) can increase or decrease aggregate supply.
* Explain why in equilibrium the economy will produce a particular combination of real output and the price level rather than another combination.
* Show the effects of an increase in aggregate demand on the real output and the price level and relate the changes to demand-pull inflation.
* Show the effects of a decrease in aggregate supply on the real output and the price level and relate the changes to cost-push inflation.
* Illustrate the effects of a decrease in aggregate demand on real output and the price level in the economy and relate the changes to recession and unemployment.
* Give five reasons for downward inflexibility of changes in the price level when aggregate demand decreases.
* Explain how the multiplier effect works to change real GDP
* Discuss whether the economy has the ability to self-correct a recession.
  + **CHAPTER OUTLINE**

1. This chapter introduces the ***aggregate demand–aggregate supply model*** (AD-AS model). It explains why real domestic output *and* the price level fluctuate in the economy. ***Aggregate demand*** is a curve that shows the total quantity of goods and services (real output) that will be purchased (demanded) at different price levels. With aggregate demand there is an inverse or negative relationship between the amount of real output demanded and the price level, so the curve slopes downward (see Figure 7.1 in the text).
2. Changes in spending by domestic consumers, businesses, government, and foreign buyers are independent of changes in the price level and are ***determinants of aggregate demand***. These determinants are also called aggregate demand shifters because a change in one of them, other things equal, will shift the entire aggregate demand curve. Figure 7.2 shows the shifts.
   1. ***Consumer spending*** can increase or decrease AD. If the price level is constant, and consumers decide to spend more, then AD will increase; if consumers decide to spend less then AD will decrease. Four factors increase or decrease consumer spending.
      1. ***Consumer wealth***: If the real value of financial assets increases, then consumers will feel wealthier, spend more, and AD increases. If the real value of financial assets falls, consumers will spend less and AD will decrease.
      2. ***Household borrowing***: If consumers have a high level of debt, they may be forced to reduce their spending, thus decreasing AD. Conversely, if the level of debt falls to a more manageable level, they may be able to borrow more money and increase their spending, thus increasing AD.
      3. ***Consumer expectations***: If consumers become more optimistic about the future, they will likely spend more and AD will increase. If consumers expect the future to be worse, they will decrease their spending and AD will decrease.
      4. ***Personal Taxes***: Cuts in taxes increase disposable income and the capacity for consumer spending, thus increasing AD. A rise in taxes decreases disposable income, consumer spending, and AD.
   2. *Applying the Analysis* (What Wealth Effect?). From 2000 to 2002, there was a reduction in consumer wealth because of a decline in the stock market, but this wealth decline did not reduce consumption. The reason this occurred was because there were offsetting effects such as rising house values that increased wealth and lower interest rates and cuts in personal taxes that increased consumer spending.
   3. ***Investment spending*** can increase or decrease AD. If the price level is constant, and businesses decide to spend more on investment, then AD will increase. If businesses decide to spend less on investment then AD will decrease. Two factors increase or decrease investment spending.
      1. ***Real interest rates***: A decrease in real interest rates will increase the quantity of investment spending, thus increasing AD. An increase in real interest rates will decrease the quantity of investment spending, thus decreasing AD.
      2. ***Expected returns***: If businesses expect higher returns on investments in the future, they will likely increase their investment spending today, so AD will increase. If businesses expect lower returns on investments in the future, they will decrease their investment spending today, and AD will decrease. These expected returns are influenced by expectations about future business conditions, the state of technology, the degree of excess capacity (the amount of unused capital goods), and business taxes.
         1. More positive future expectations, more technological progress, less excess capacity, and lower business taxes will increase investment spending and thus increase AD.
         2. Less positive future expectations, less technological progress, more excess capacity, and higher business taxes will decrease investment spending and thus decrease AD.
   4. ***Government spending*** has a direct effect on AD, assuming that tax collections and interest rates do not change as a result of the spending. More government spending tends to increase AD and less government spending will decrease AD.
   5. ***Net export spending*** can increase or decrease AD. If the price level is constant and net exports (exports minus imports) should increase, then AD will increase. If net exports are negative, then AD will decrease. Two factors explain the increase or decrease in net export spending.
      1. ***National income abroad***: An increase in the national income of other nations will increase the demand for all goods and services, including U.S. exports. If U.S. exports increase relative to U.S. imports, then net exports will increase, and so will AD. A decline in national incomes abroad will tend to reduce U.S. net exports and thus reduces AD.
      2. ***Exchange rates***: A depreciation in the value of the U.S. dollar means that U.S. imports should decline because domestic purchases cannot buy as many imports as they used to buy. U.S. exports should increase because foreigners have more purchasing power to buy U.S. products. These events increase net exports, and thus increase AD. An appreciation in the value of the dollar will decrease net exports, and thus decrease AD.
3. ***Aggregate supply*** is a curve that shows the total quantity of goods and services that will be produced (supplied) at different price levels.
   1. In the ***immediate short run***, the aggregate supply curve is horizontal because both input prices and output prices remain fixed. The horizontal shape implies that the total amount of output supplied in the economy depends directly on the amount of spending at the fixed price level.
   2. In the ***short run***, the aggregate supply curve is upsloping because nominal wages and input prices adjust only slowly to changes in the price level. With this curve, an increase in the price level increases real output and a decrease in the price level reduces real output.
   3. In the ***long run***, the aggregate supply curve is vertical at the full-employment level of output for the economy because the rise in wages and other inputs will match changes in the price level.
4. The ***determinants of aggregate supply*** that shift the curve include changes in the prices of inputs for production, changes in productivity, and changes in the legal and institutional environment in the economy, as outlined in Figure 7.5.
   1. A change in ***input prices*** for resources used for production will change aggregate supply in the short run. Lower input prices increase AS and higher input prices decrease AS. These input prices are both for domestic and imported resources.
      1. ***Domestic resource prices*** include the prices for labor, capital, and natural resources used for production. If any of these input prices decrease, then AS will decrease because the per-unit cost of production will decrease. When the prices of these domestic factors of production increase, then AS will decrease.
      2. The ***prices of imported resources*** is the cost of paying for resources imported from other nations. If the value of the dollar appreciates, then it will cost less to pay for imported resources used for production. As a result, per-unit production costs will decrease, and AS will increase. Conversely, if the value of the dollar depreciates, then it will cost more to import resources, so AS will decrease.
   2. As ***productivity*** increases, per-unit production costs will fall and AS will increase, if resource prices remain constant. Conversely, as productivity falls, per-unit production costs will increase and AS will decrease.
   3. Changes in the ***legal and institutional environment*** for business can affect per-unit production costs and thus AS.
      1. A decrease in ***business taxes*** is like a reduction in the per-unit cost of production, so it will increase AS. The raising of taxes for business will increase per-unit production costs and decrease AS.
      2. A decrease in the amount of ***government regulation*** is similar to a decrease in the per-unit cost of production, so it will increase AS. An increase in government regulation will raise costs, and thus will decrease AS.
5. The ***equilibrium domestic output*** and the ***equilibrium price level*** are at the intersection of the aggregate demand and the aggregate supply curves. If the price level were below equilibrium, then producers would supply less real output than was demanded by purchasers. Competition among buyers would bid up the price level and producers would increase their output, until an equilibrium price level and quantity was reached.
   1. The aggregate demand and aggregate supply curves can also ***shift to change equilibrium***.
      1. *Applying the Analysis* (Demand-Pull Inflation). An increase in aggregate demand would result in an increase in both real domestic output and the price level. An increase in the price level beyond the full-employment level of output is associated with ***demand-pull inflation***. The U.S. economy experienced such inflation in the mid-1960s because of spending for the war in Vietnam and domestic programs.
      2. *Applying the Analysis* (Cost-Push Inflation). A decrease in aggregate supply would result in an increase in the price level and a decrease in real domestic output. Such a situation is characteristic of ***cost-push inflation*** that the U.S. economy experienced in the mid-1970s with a sharp rise in oil prices.
   2. In contrast to rises in the price level and demand-pull and cost-push inflation, declines in the price level are rare. The ***price level is inflexible downward*** because it is largely influenced by labor costs which account for most of the input prices for the production of many goods and services. There are at least five interrelated reasons that firms are reluctant to lower prices: fear of starting a price war with competitors; the cost of changing prices (menu costs); the price stability provided by long-term wage contracts; the adverse effects on worker morale, effort or productivity from lowering wages; and a minimum wage that sets a wage floor for labor.
      1. *Applying the Analysis* (Recession and Cyclical Unemployment). If aggregate demand declines, but the price level does not, a recession results. This recession creates cyclical unemployment and a GDP gap (actual GDP is less than potential GDP). In such cases, there is no deflation (a decline in the price level), although there can be disinflation (a decline in the rate of inflation).
   3. Shifts in aggregate demand are affected by a multiplier effect. The ***multiplier*** is simply the ratio of the change in real GDP to the *initial* changes in spending. Multiplying the *initial* change in spending by the *multiplier* gives you the full amount of change in real GDP. The multiplier effect works in both positive and negative directions. An *initial* decrease in spending will result in a larger decrease in real GDP, or an *initial* increase in spending will create a larger increase in real GDP.
   4. It may not always be the case that prices and wages are *inflexible downward* because of foreign competition or some other factor. In theory, such price and wage declines can “self-correct” a recession by increasing aggregate supply to counter the decline in aggregate demand. Also, government and monetary authorities may not wait for this self-correction to work. To bolster or increase aggregate demand, they may cut taxes, increase government spending, or lower interest rates.

* **HINTS AND TIPS**

1. Aggregate demand and supply are the tools used to explain what determines the economy’s real output and price level. These tools, however, are ***different from the demand and supply*** used in Chapter 3 to explain what determines the output and price of a *particular* product. Instead of thinking about the quantity of a *particular* good or service demanded or supplied, it is necessary to think about the total or *aggregate* quantity of all final goods and services demanded (purchased) and supplied (produced). You will have no difficulty with the way demand and supply are used in this chapter once you switch from thinking about a *particular* good or service and its price to the *aggregate* of all final goods and services and their average price.
2. Make a chart showing each of the ***determinants*** of aggregate demand (see Figure 7.2) and aggregate supply (Figure 7.5). In the chart, state the direction of the change in each determinant, and then state the likely resulting change in AD or AS. For example, if consumer wealth *increases*, then AD *increases*. Or, if imported prices for resources *increase*, then AS *decreases*. This simple chart can help you see in one quick glance all the possible changes in determinants and their likely effects on AD or AS. Problem 2 in this study guide chapter will give you an application for this chart.
3. Make sure you know the difference between a ***movement*** along an existing aggregate demand or supply curve and a ***shift*** in (increase or decrease in) an aggregate demand or supply curve.

* **IMPORTANT TERMS**

|  |  |
| --- | --- |
| **aggregate demand–aggregate supply (AD–AS) model**  **aggregate demand (AD)**  **determinants of**  **aggregate demand**  **exchange rates**  **aggregate supply (AS)**  **immediate-short-run aggregate supply curve** | **short-run aggregate supply curve**  **long-run aggregate supply curve**  **determinants of**  **aggregate supply**  **productivity**  **equilibrium price level**  **equilibrium real**  **output**  **multiplier** |

**SELF-TEST**

* **FILL-IN QUESTIONS**

1. Aggregate demand and aggregate supply together determine the equilibrium real domestic (price, output) \_\_\_\_\_\_\_\_\_\_\_\_ and the equilibrium \_\_\_\_\_\_\_\_\_\_\_\_ level.
2. The aggregate demand curve shows the quantity of goods and services that will be (supplied, demanded) \_\_\_\_\_\_\_\_\_\_\_\_\_\_ or purchased at various price levels. For aggregate demand, the relationship between real output and the price level is (positive, negative) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. For the aggregate demand curve, an increase  
   in the price level (increases, decreases) \_\_\_\_\_\_\_\_\_\_\_\_\_\_ the quantity of real domestic output demanded, whereas a decrease in the price level \_\_\_\_\_\_\_\_\_\_\_\_\_\_ the quantity of real domestic output demanded, assuming other things equal.
4. For the aggregate demand curve, when the price level changes, there is a (movement along, change in) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the curve. When the entire aggregate demand curve shifts, there is a change in (the quantity of real  
   output demanded, aggregate demand) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
5. List the four factors that may change consumer spending, and thus shift aggregate demand:
   1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. A decline in consumer wealth is most likely to (increase, decrease) \_\_\_\_\_\_\_\_\_\_ consumer spending if there are not other changes affecting consumer spending. If, however, there also is a decline in personal taxes or a reduction in interest rates for consumers, then a decline in consumer wealth would be (reinforced, offset) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ by these tax and interest rate changes.
7. List two major factors that may change investment spending, and thus shift aggregate demand:
   1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. If government spending increases, then aggregate demand is likely to (increase, decrease) \_\_\_\_\_\_\_\_\_\_\_\_\_\_, but if government spending decreases, it is likely to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
9. If there is an increase in national income abroad, then net exports spending is most likely to (increase, decrease) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and if there is a depreciation of the value of the U.S. dollar, then net exports are likely to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. When net exports increase, aggregate demand will (increase, decrease) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
10. The aggregate supply curve shows the quantity of goods and services that will be (demanded, supplied) \_\_\_\_\_\_\_\_\_\_\_\_\_ or produced at various price levels. As the price level increases, real domestic output (increases, decreases) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and as the price level decreases, real domestic output \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The relationship between the price level and real domestic output supplied is (positive, negative) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
11. The basic cause of a decrease in aggregate supply is the (increase, decrease) \_\_\_\_\_\_\_\_\_\_\_\_\_\_ in per-unit costs of producing goods and services, and the basic cause of an increase in aggregate supply is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ in per-unit costs of production, all other things equal.
12. Aggregate supply shifts may result from:
    1. a change in input prices caused by a change in
       1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
       2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    2. a change in (consumption, productivity) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    3. a change in the legal and institutional environment caused by a change in
       1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
       2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
13. Productivity is determined by taking total output and (multiplying, dividing) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ it by total inputs. Assuming that resource prices remain the same, if productivity increases, then per-unit production costs will (increase, decrease) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, but if productivity decreases, then per-unit production costs will \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
14. The equilibrium real domestic output and price level are found at the (zero values, intersection) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the aggregate demand and the aggregate supply curves. At this price level, the aggregate quantity of goods and services demanded is (greater than, less than, equal to) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the aggregate quantity of goods and services supplied. And at this real domestic output, the prices producers are willing to (pay, accept) \_\_\_\_\_\_\_\_\_\_\_\_ are equal to the prices buyers are willing to \_\_\_\_\_\_\_\_\_\_\_\_\_.
15. If the price level were below equilibrium, the quantity of real domestic output supplied would be (greater than, less than) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the quantity of real domestic output demanded. As a result competition among buyers eliminates the (surplus, shortage) \_\_\_\_\_\_\_\_\_\_\_\_\_ and bids up the price level.
16. An increase in aggregate demand will (increase, decrease) \_\_\_\_\_\_\_\_\_\_\_\_ real domestic output and will \_\_\_\_\_\_\_\_\_\_\_\_\_ the price level. If the economy is initially operating at its full-employment level of output, and aggregate demand increases, it will produce (demand-pull, cost-push) \_\_\_\_\_\_\_\_\_\_\_\_\_\_ inflation.
17. A decrease in aggregate supply will (increase, decrease) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ real domestic output and will \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the price level. This situation will produce (demand-pull, cost-push) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ inflation.
18. When aggregate demand decreases, the price level is often inflexible (upward, downward) \_\_\_\_\_\_\_\_\_\_\_\_\_\_. This inflexibility occurs because:

(a) due to wage (contracts, flexibility) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, workers are paid (efficiency, inefficiency) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ wages; (b) there is a (maximum, minimum) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ wage; (c) businesses experience menu (benefits, costs) \_\_\_\_\_\_\_\_\_\_\_\_\_; (d) and there is fear of (price, wage) \_\_\_\_\_\_\_\_\_\_ wars.

1. If aggregate demand decreases, then real domestic output will (increase, decrease) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. If the price level is inflexible downward, then such a change often produces economic conditions called (inflation, recession) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and unemployment (rises, falls) \_\_\_\_\_\_\_\_\_\_.
2. In theory, flexible wages and prices will (reinforce, self-correct) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ a decline in aggregate demand by (increasing, decreasing) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ aggregate supply. Rather than waiting for the situation to improve, government and monetary authorities may take actions to increase aggregate (demand, supply) \_\_\_\_\_\_\_\_\_\_\_ by cutting taxes or lowering interest rates.

* **TRUE–FALSE QUESTIONS**

*Circle T if the statement is true, F if it is false.*

1. Aggregate demand reflects a positive relationship between the price level and the amount of real output demanded. **T F**
2. A movement along a fixed aggregate demand curve is the same as a shift in aggregate demand.

**T F**

1. Changes in aggregate demand involve a change in spending from one of the determinants.

**T F**

1. A change in aggregate demand is caused by a change in the price level, *other things equal*. **T F**
2. If consumers expect their incomes to rise, the consumer spending is most likely to fall. **T F**
3. If household borrowing increases, then consumer spending is likely to increase. **T F**
4. A fall in excess capacity, or unused existing capital goods, will retard the demand for new capital goods and therefore reduce aggregate demand.

**T F**

1. A decline in government spending shifts the aggregate demand curve to the right. **T F**
2. When national incomes abroad increase, it will increase foreign spending on domestic goods and tend to increase net exports. **T F**
3. The aggregate supply curve is vertical in the long run at the full-employment level of output. **T F**
4. When the determinants of short-run aggregate supply change, they alter the per-unit production cost and thereby aggregate supply. **T F**
5. A change in the degree of monopoly power held by sellers of resources can affect input prices and aggregate supply. **T F**
6. Productivity is a measure of real output per unit of input. **T F**
7. If productivity increases and resource prices remain the same, then per-unit production cost will decline. **T F**
8. At the equilibrium price level, the real domestic output purchased is equal to the real domestic output produced. **T F**
9. An increase in aggregate demand will increase both the price level and the real domestic output.

**T F**

1. An increase in aggregate supply is associated with cost-push inflation. **T F**
2. Fear of price wars tends to make the price level more flexible rather than less flexible. **T F**
3. Many employers are reluctant to reduce wages because of the potential adverse effects on worker morale, effort, and productivity. **T F**
4. The ratchet effects shows that the price-level and per-unit production costs can rise when aggregate demand increases, but they are inflexible downward when aggregate demand declines. **T F**
5. A significant decrease in aggregate demand can result in recession and a GDP gap. **T F**
6. The multiplier is the ratio of a change in GDP to the initial change in spending. **T F**
7. If investment in an economy rises by $10 billion and as a result aggregate demand and real GDP increase by $40 billion, then the multiplier is 2. **T F**
8. The multiplier works in both directions: an initial increase in spending may lead to multiple increases in GDP; an initial decrease in spending may lead to multiple decreases in GDP. **T F**
9. If prices and wages are inflexible downward, they help an economy “self-correct” from a recession. **T F**

* **MULTIPLE-CHOICE QUESTIONS**

*Circle the letter that corresponds to the best answer.*

1. The aggregate demand curve is the relationship between the
   1. price level and what producers will supply
   2. price level and the real domestic output purchased
   3. price level and the real domestic output produced
   4. real domestic output purchased and the real domestic output produced
2. When the price level falls,
   1. real domestic output increases
   2. real domestic output decreases
   3. aggregate supply increases
   4. aggregate supply decreases
3. If consumers expect lower incomes in the near future then
   1. consumer wealth will increase
   2. consumer spending will decrease
   3. investment spending will increase
   4. personal taxes for consumers will decrease
4. Which set of events would most likely decrease aggregate demand?
   1. an increase in consumer spending
   2. an increase in national incomes abroad
   3. an increase in household borrowing
   4. a decrease in business taxes
5. The aggregate demand curve will be increased by
   1. a decrease in the price level
   2. an increase in the price level
   3. a depreciation in the value of the U.S. dollar
   4. an increase in the excess capacity of factories
6. The aggregate supply curve is the relationship between the
   1. price level and the real domestic output purchased
   2. price level and the real domestic output produced
   3. price level that producers are willing to accept and the price level purchasers are willing to pay
   4. real domestic output purchased and the real domestic output produced
7. The short-run aggregate supply curve assumes that
   1. nominal wages adjust immediately to changes in the price level
   2. nominal wages adjust only slowly to changes in the price level
   3. the economy is operating at full-employment output
   4. the economy is operating at less than full-employment output
8. In the long run, the aggregate supply curve is
   1. upsloping
   2. downsloping
   3. vertical
   4. horizontal
9. If the prices of imported resources increase, then this event would most likely
   1. decrease aggregate supply
   2. increase aggregate supply
   3. increase aggregate demand
   4. decrease aggregate demand

*Suppose that real domestic output in an economy is 50 units, the quantity of inputs is 10, and the price of each input is $2. Answer Questions 10, 11, 12, and 13 on the basis of this information.*

1. The level of productivity in this economy is
   1. 5
   2. 4
   3. 3
   4. 2
2. The per-unit cost of production is
   1. $0.40
   2. $0.50
   3. $2.50
   4. $3.50
3. If productivity increased such that 60 units are now produced with the quantity of inputs still equal to 10, then per-unit production costs would
   1. remain unchanged and aggregate supply would remain unchanged
   2. increase and aggregate supply would decrease
   3. decrease and aggregate supply would increase
   4. decrease and aggregate supply would decrease
4. All else equal, if the price of each input increases from $2 to $4, productivity would
   1. decrease from $4 to $2 and aggregate supply would decrease
   2. decrease from $5 to $3 and aggregate supply would decrease
   3. decrease from $4 to $2 and aggregate supply would increase
   4. remain unchanged and aggregate supply would decrease
5. An increase in business taxes will most likely
   1. increase aggregate demand
   2. increase aggregate supply
   3. decrease aggregate supply
   4. decrease aggregate demand
6. If Congress passed much stricter laws to control the air pollution from businesses, this action would tend to
   1. increase per-unit production costs and shift the aggregate supply curve to the right
   2. increase per-unit production costs and shift the aggregate supply curve to the left
   3. increase per-unit production costs and shift the aggregate demand curve to the left
   4. decrease per-unit production costs and shift the aggregate supply curve to the left
7. If at a particular price level, real domestic output from producers is less than real domestic output desired by buyers, there will be a
   1. surplus and the price level will rise
   2. surplus and the price level will fall
   3. shortage and the price level will rise
   4. shortage and the price level will fall

*Answer Questions 17, 18, and 19 on the basis of the following aggregate demand–aggregate supply schedule for a hypothetical economy.*

|  |  |  |
| --- | --- | --- |
| **Real domestic output demanded**  **(in billions)** | **Price level** | **Real domestic output supplied**  **(in billions)** |
| $1500 | 175 | $4500 |
| $2000 | 150 | $4000 |
| $2500 | 125 | $3500 |
| $3000 | 100 | $3000 |
| $3500 | 75 | $2500 |
| $4000 | 50 | $2000 |

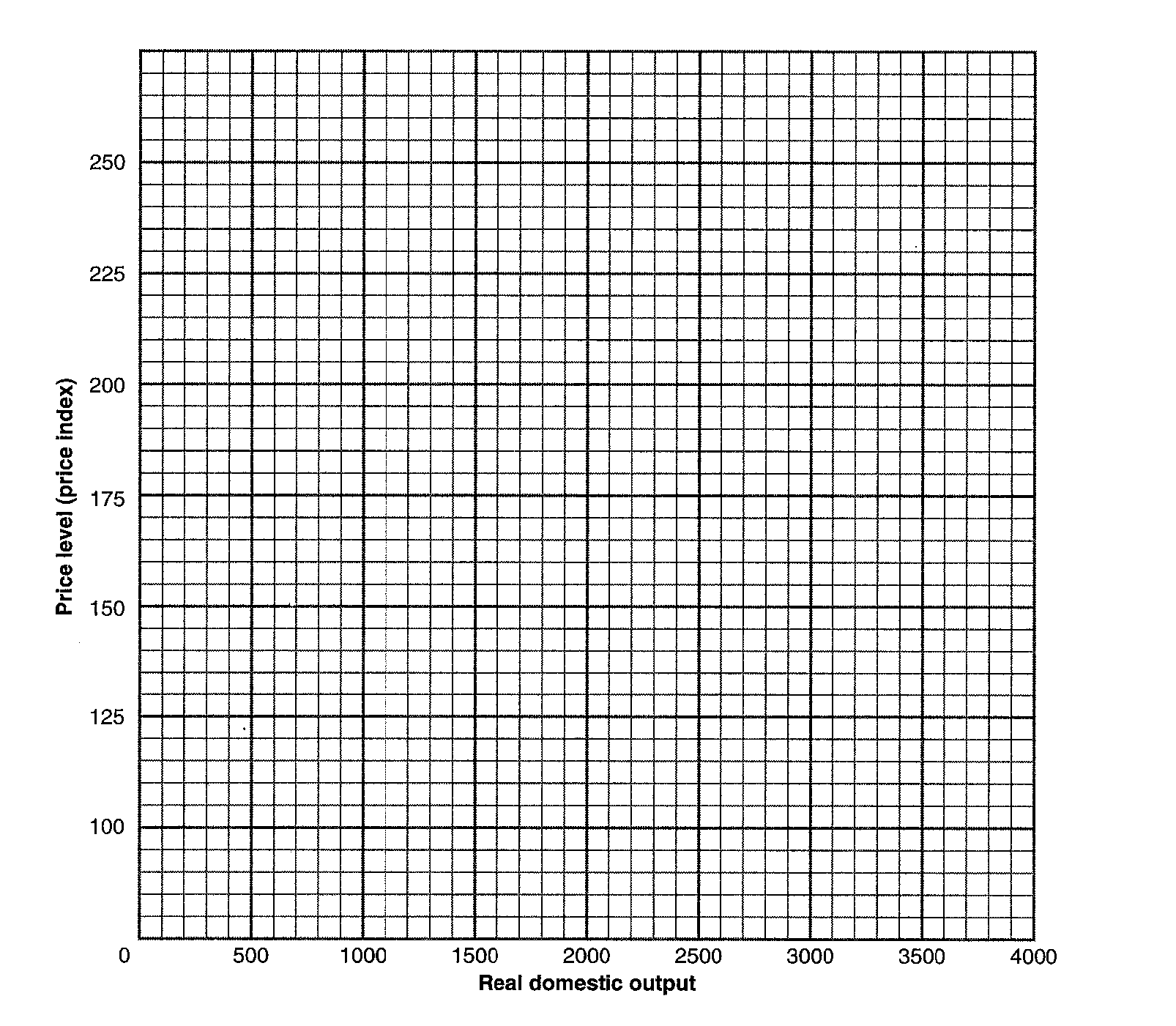
1. The equilibrium price level and quantity of real domestic output will be
   1. 100 and $2500
   2. 100 and $3000
   3. 125 and $3500
   4. 150 and $4000
2. If the quantity of real domestic output demanded increased by $2000 at each price level, the new equilibrium price level and quantity of real domestic output would be
   1. 175 and $4000
   2. 150 and $4000
   3. 125 and $3500
   4. 100 and $3000
3. Using the original data from the table, if the quantity of real domestic output demanded *increased* by $1500 and the quantity of real domestic output supplied *increased* by $500 at each price level, the new equilibrium price level and quantity of real domestic output would be
   1. 175 and $4000
   2. 150 and $4500
   3. 125 and $4000
   4. 100 and $3500
4. An increase in aggregate demand will increase
   1. the price level and have no effect on real domestic output
   2. the real domestic output and have no effect on the price level
   3. the price level and decrease the real domestic output
   4. both real output and the price level
5. If there were cost-push inflation,
   1. both the real domestic output and the price level would decrease
   2. the real domestic output would increase and rises in the price level would become smaller
   3. the real domestic output would decrease and the price level would rise
   4. both the real domestic output and rises in the price level would become greater
6. Aggregate demand decreases and real output falls but the price level remains the same. Which factor most likely contributes to downward price inflexibility?
   1. an increase in aggregate supply
   2. long-term wage contracts
   3. lower interest rates
   4. the wealth effect
7. Menu costs, wage contracts, and fear of price wars are associated with
   1. a price level that is inflexible upward
   2. a price level that is inflexible downward
   3. a domestic output that cannot be increased
   4. a domestic output that cannot be decreased
8. A GDP gap with no deflation is typically produced by
   1. a decrease in aggregate supply
   2. an increase in aggregate supply
   3. an increase in aggregate demand
   4. a decrease in aggregate demand
9. If wages and prices are flexible, a decline in aggregate demand can be corrected by
   1. a decrease in aggregate supply
   2. an increase in aggregate supply
   3. an increase in personal taxes
   4. an increase in interest rates

* **PROBLEMS**

1. Following is an aggregate supply schedule.

|  |  |
| --- | --- |
| **Price level** | **Real domestic output supplied** |
| 250 | 2100 |
| 225 | 2000 |
| 200 | 1900 |
| 175 | 1700 |
| 150 | 1400 |
| 125 | 1000 |
| 100 | 900 |

* 1. Plot this aggregate supply schedule on the graph at the top of the next page.



* 1. The following table has three aggregate demand schedules.

|  |  |  |  |
| --- | --- | --- | --- |
| **Price level** | ***Real domestic output demanded*** | | |
|  | | |
| **(1)** | **(2)** | **(3)** | **(4)** |
| 250 | 1400 | 1900 | 500 |
| 225 | 1500 | 2000 | 600 |
| 200 | 1600 | 2100 | 700 |
| 175 | 1700 | 2200 | 800 |
| 150 | 1800 | 2300 | 900 |
| 125 | 1900 | 2400 | 1000 |
| 100 | 2000 | 2500 | 1100 |

* + 1. On the graph, plot the aggregate demand curve shown in columns 1 and 2; label this curve **AD1**. At this level of aggregate demand, the equilibrium real domestic output is \_\_\_\_\_\_\_ and the equilibrium price level is \_\_\_\_\_\_\_\_\_\_.
    2. On the same graph, plot the aggregate demand curve shown in columns 1 and 3; label this curve **AD2**. The equilibrium real domestic output is \_\_\_\_\_\_\_ and the equilibrium price level is \_\_\_\_\_\_\_\_\_\_\_.
    3. On the same graph, plot the aggregate demand curve shown in columns 1 and 4; label it **AD3**. The equilibrium real domestic output is \_\_\_\_\_\_\_\_\_ and the equilibrium price level is \_\_\_\_\_\_\_\_\_\_.

1. In the following list, what will most likely happen as a result of each event to (1) aggregate demand (AD); (2) aggregate supply (AS); (3) the equilibrium price level (***P***); and (4) equilibrium real domestic output (***Q***)? Assume all other things remain constant when the event occurs and that the economy is operating in the intermediate range of the aggregate supply curve. Use the following symbols to indicate the expected effects: ***I*** = increase, ***D*** = decrease, ***S*** = remains the same, and ***U*** = uncertain.
   1. A decrease in labor productivity.

AD\_\_\_\_\_ AS\_\_\_\_\_ ***P***\_\_\_\_\_ ***Q***\_\_\_\_\_

* 1. A fall in the interest rate for business loans.

AD\_\_\_\_\_ AS\_\_\_\_\_ ***P***\_\_\_\_\_ ***Q***\_\_\_\_\_

* 1. Consumer incomes decline as the economy moves into a recession.

AD\_\_\_\_\_ AS\_\_\_\_\_ ***P***\_\_\_\_\_ ***Q***\_\_\_\_\_

* 1. There is an appreciation in the value of the U.S. dollar.

AD\_\_\_\_\_ AS\_\_\_\_\_ ***P***\_\_\_\_\_ ***Q***\_\_\_\_\_

1. Following are hypothetical data showing the relationships between the real domestic output and the quantity of input resources needed to produce each level of output.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Output** | **Input** | ***Productivity*** | | ***Per unit cost*** | | |
|  |  | **(1)** | **(2)** | **(3)** | **(4)** | **(5)** |
| 2500 | 500 | \_\_\_\_\_ | \_\_\_\_\_ | \_\_\_\_\_ | \_\_\_\_\_ | \_\_\_\_\_ |
| 2000 | 400 | \_\_\_\_\_ | \_\_\_\_\_ | \_\_\_\_\_ | \_\_\_\_\_ | \_\_\_\_\_ |
| 1500 | 300 | \_\_\_\_\_ | \_\_\_\_\_ | \_\_\_\_\_ | \_\_\_\_\_ | \_\_\_\_\_ |

* 1. In column 1, compute the level of productivity at each level of real domestic output.
  2. In column 2, compute the level of productivity if there is a doubling in the quantity of inputs required to produce each level of output.
  3. In column 3, compute the per-unit production cost at each level of output if each unit of input costs $15, given the level of productivity in column 1.
  4. In column 4, compute the new per-unit production cost at each level of output if each unit of input costs $15, given that the required quantity of inputs has doubled to produce each level of output as shown in column 2. If this situation occurs, will aggregate supply (decrease, increase, stay the same)? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  5. In column 5, compute the new per-unit production cost at each level of output, given that input price is now $10 instead of $15 but the level of productivity stays as it was originally shown in column 1. What will happen to the aggregate supply curve if this situation occurs?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Columns 1 and 2 in the table that follows are the aggregate supply schedule of an economy.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **(1)**  **Price level** | **(2)**  **Real GDP** | **(3)**  **AD1** | **(4)**  **AD2** | **(5)**  **AD3** | **(6)**  **AD4** | **(7)**  **AD5** | **(8)**  **AD6** |
| 260 | 2540 | 940 | 1140 | 1900 | 2000 | 2090 | 2390 |
| 240 | 2490 | 1040 | 1240 | 2000 | 2100 | 2190 | 2490 |
| 220 | 2430 | 1140 | 1340 | 2100 | 2200 | 2290 | 2590 |
| 200 | 2390 | 1240 | 1440 | 2200 | 2300 | 2390 | 2690 |
| 190 | 2350 | 1390 | 1590 | 2250 | 2350 | 2540 | 2740 |
| 180 | 2300 | 1440 | 1640 | 2300 | 2400 | 2590 | 2890 |
| 160 | 2200 | 1540 | 1740 | 2400 | 2500 | 2690 | 2990 |
| 140 | 2090 | 1640 | 1840 | 2500 | 2600 | 2790 | 3090 |
| 120 | 1940 | 1740 | 1940 | 2600 | 2700 | 2890 | 3190 |
| 100 | 1840 | 1840 | 2040 | 2700 | 2800 | 2990 | 3290 |

* 1. If the aggregate demand in the economy were columns 1 and 3, the equilibrium real GDP would be \_\_\_\_\_\_\_\_\_\_ and the equilibrium price level would be \_\_\_\_\_\_\_\_\_\_, and if aggregate demand should increase to that shown in columns 1 and 4, the equilibrium real GDP would increase to \_\_\_\_\_\_\_\_\_\_ and the price level would be \_\_\_\_\_\_\_\_\_\_.
  2. Should aggregate demand be that shown in columns 1 and 5, the equilibrium real GDP would be \_\_\_\_\_\_\_\_\_\_ and the equilibrium price level would be \_\_\_\_\_\_\_\_\_\_, and if aggregate demand should increase by 100 units to that shown in columns 1 and 6, the equilibrium real GDP would increase to \_\_\_\_\_\_\_\_\_\_ and the price level would rise to \_\_\_\_\_\_\_\_\_\_.
  3. And if aggregate demand were that shown in columns 1 and 7, the equilibrium real GDP would be \_\_\_\_\_\_\_\_\_\_ and the equilibrium price level would be \_\_\_\_\_\_\_\_\_\_, but if aggregate demand increased to that shown in columns 1 and 8, the equilibrium real GDP would be \_\_\_\_\_\_\_\_\_\_ and the price level would rise to \_\_\_\_\_\_\_\_\_\_.
* **SHORT ANSWER AND ESSAY QUESTIONS**

1. What is the aggregate demand curve? Draw a graph and explain its features.
2. Explain the consumer wealth effect and its impact on consumer spending. Give an example.
3. What roles do expectations of consumers and businesses play in influencing aggregate demand?
4. How can household borrowing or changes in personal taxes change consumer spending?
5. Explain the effects of real interest rates and expected returns on investment spending.
6. How is aggregate demand changed by changes in net export spending? What factors cause changes in net export spending?
7. Why is the immediate-short-run aggregate supply curve horizontal?
8. Why does the short-run aggregate supply curve slope upward?
9. Why is the aggregate supply curve in the long run a vertical curve? Why is output not affected by the price level in the long run?
10. Describe how changes in the international economy influence aggregate demand or aggregate supply.
11. How does an increase or decrease in per-unit production costs change aggregate supply? Give examples.
12. How does the legal and institutional environment affect aggregate supply? Give examples.
13. Explain how a change in business taxes affects aggregate supply.
14. What real domestic output is the equilibrium real domestic output? What will happen to real output if the price level is below equilibrium?
15. What are the effects on the real domestic output and the price level when aggregate demand increases along the aggregate supply curve?
16. Use the aggregate demand and supply model to explain demand-pull inflation. Give examples of it based in the U.S. economy.
17. What are the effects on the real domestic output and the price level of a decrease in aggregate supply? Give historical examples of this economic condition.
18. Give reasons why prices in the economy tend to be “sticky” or inflexible in a downward direction. How do these forces create a ratchet effect?
19. Explain how the multiplier works and affects aggregate demand.
20. If prices were as flexible downward as they are upward, what would be the effects on real domestic output and the price level of a decrease in aggregate demand?

**ANSWERS**

**Chapter 7 Aggregate Demand and**

**Aggregate Supply**

**FILL-IN QUESTIONS**

1. output, price
2. demanded, negative
3. decreases, increases
4. movement along, aggregate demand
5. *a.*consumer wealth; *b.*household borrowing; *c.*consumer expectations; *d.*personal taxes (any order for *a–d*)
6. decrease, offset
7. *a.*interest rates; *b.*expected returns on investment (any order for *a–b*)
8. increase, decrease
9. increase, increase, increase
10. supplied, increases, decreases, positive
11. increase, decrease
12. *a.*(1) domestic resource prices, (2) prices of imported resources (either order); *b.*productivity; *c.*(1) business taxes (2) government regulation (either order)
13. dividing, decrease, increase
14. intersection, equal to, accept, pay
15. less than, shortage
16. increase, increase, demand-pull
17. decrease, increase, cost-push
18. downward, contracts, efficiency, minimum, costs, price
19. decrease, recession, rises
20. self-correct, increasing, demand

**TRUE–FALSE QUESTIONS**

|  |  |  |
| --- | --- | --- |
| **1.** F, pp. 145–146 | **10.** T, p. 156 | **19.** T, pp. 162–163 |
| **2.** F, pp. 145–147 | **11.** T, pp. 154–155 | **20.** T, pp. 163–164 |
| **3.** T, pp. 145–147 | **12.** T, pp. 155–157 | **21.** T, pp. 163–164 |
| **4.** F, pp. 145–147 | **13.** T, p. 158 | **22.** T, p. 165 |
| **5.** F, pp. 147–148 | **14.** T, p. 158 | **23.** F, p. 165 |
| **6.** T, pp. 146–148 | **15.** T, pp. 158–159 | **24.** T, p. 165 |
| **7.** F, p. 149 | **16.** T, pp. 158–159 | **25.** F, pp. 165–166 |
| **8.** F, pp. 149–150 | **17.** F, pp. 160–162 |  |
| **9.** T, p. 150 | **18.** F, pp. 162–163 |  |

**MULTIPLE-CHOICE QUESTIONS**

|  |  |  |
| --- | --- | --- |
| **1.** b, pp. 145–146 | **9.** a, p. 157 | **18.** b, pp. 158–159 |
| **2.** a, pp. 145–146 | **10.** a, p. 158 | **19.** c, pp. 158–159 |
| **3.** b, pp. 147–148 | **11.** a, p. 158 | **20.** d, pp. 158–159 |
| **4.** c, pp. 146–148 | **12.** c, p. 158 | **21.** c, pp. 160–162 |
| **5.** c, pp. 145–146; 149–150 | **13.** d, p. 158 | **22.** b, pp. 162–163 |
| **14.** c, p. 158 | **23.** b, pp. 162–163 |
| **6.** b, p. 151 | **15.** b, p. 158 | **24.** d, pp. 163–165 |
| **7.** b, pp. 152–153 | **16.** c, pp. 158–159 | **25.** b, pp. 165–166 |
| **8.** c, pp. 154-155 | **17.** b, pp. 158–159 |  |

**PROBLEMS**

1. *b.*(1) 1700, 175, (2) 2000, 225, (3) 1000, 125
2. *a. S, D, I, D*; *b. I, S, I, I*; *c. D, S, D, D*; *d. D, I, D, U*
3. *a.*5, 5, 5; *b.*2.5, 2.5, 2.5; *c.*$3, $3, $3; *d.*$6, $6, $6, decrease; *e.*$2, $2, $2, it will increase
4. *a.*1840, 100, 1940, 120; *b.*2300, 180, 2350, 190; *c.*2390, 200, 2490, 240

**SHORT ANSWER AND ESSAY QUESTIONS**

|  |  |  |
| --- | --- | --- |
| **1.** pp. 145–146 | **8.** pp. 152–154 | **15.** pp. 158–159 |
| **2.** pp. 145–147 | **9.** pp. 154–155 | **16.** pp. 159–161 |
| **3.** pp. 147–149 | **10.** pp. 150, 157 | **17.** pp. 160–162 |
| **4.** pp. 146–148 | **11.** p. 158 | **18.** pp. 162-164 |
| **5.** pp. 148–149 | **12.** p. 158 | **19.** p. 165 |
| **6.** p. 150 | **13.** p. 158 | **20.** pp. 165–166 |
| **7.** pp. 151–152 | **14.** pp. 158–159 |  |