For numbers 1 and 2 please show the shift or shifts in supply and demand in the graphs below. **LABEL ALL CURVES AND LABEL THE AXES.** Indicate in the blank spaces provided below what will happen to Supply, Demand, Price and Quantity. 2 points each.

1. Bologna is an inferior good. Please show what will happen in the market for bologna if the level of income in the United States declines.

   - Supply: \( \uparrow \)  
   - Demand: \( \downarrow \)  
   - Price: \( \uparrow \)  
   - Quantity: \( \uparrow \)

2. Petroleum is the main input in making gasoline. Please show what happened in the market for gasoline as the price of oil fell in recent months.

   - Supply: \( \downarrow \)  
   - Demand: \( \uparrow \)  
   - Price: \( \downarrow \)  
   - Quantity: \( \uparrow \)

3.a. (2 points) Suppose we look at the demand for horse blankets. Please calculate the elasticity of demand for horse blankets.

   \[
   \text{Elasticity} = \frac{\frac{\Delta Q}{\text{old } Q}}{\frac{\Delta P}{\text{old } P}} = \frac{\frac{1000 - 900}{1000}}{\frac{200 - 150}{200}} = \frac{\frac{100}{100}}{\frac{50}{100}} = \frac{2}{3} \approx 0.67
   \]

   b. Is the demand for horse blankets elastic or inelastic? What in part (a) tells you so?

   \[\text{Inelastic} \quad \because 0.67 < 1\]
4. (4 points) a. Suppose we are given the following information about Roger's House of Cod. Please fill in all of the blanks.

<table>
<thead>
<tr>
<th>Quantity Produced</th>
<th>Total Cost</th>
<th>Marginal Cost</th>
<th>Quantity Demanded</th>
<th>Price</th>
<th>Total Revenue</th>
<th>Marginal Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>100</td>
<td>--</td>
<td>0</td>
<td>60</td>
<td>0</td>
<td>--</td>
</tr>
<tr>
<td>1</td>
<td>150</td>
<td>50</td>
<td>1</td>
<td>60</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>2</td>
<td>210</td>
<td>60</td>
<td>2</td>
<td>60</td>
<td>120</td>
<td>60</td>
</tr>
<tr>
<td>3</td>
<td>280</td>
<td>70</td>
<td>3</td>
<td>60</td>
<td>180</td>
<td>60</td>
</tr>
</tbody>
</table>

b. How much is Roger's Fixed Cost?

Cost is low even if produce nothing

\[ C_{\text{fix}} = 0 \]

5. (2 points) The diagram below shows the situation of Big Pharma which has a monopoly on the drug Damital. Given the diagram below what price would they charge and what quantity would they sell?

\[ \text{Operate at } Q \text{ where } MR = MC \]

\[ Q = 100 \]

Demand shows \( P = 20 \)
6. (4 points) In the country of Shem, the CPI is calculated using a market basket consisting of 5 apples and 4 loaves of bread. The per-unit prices of these goods have been as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Apples</th>
<th>Bread</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>$1.00</td>
<td>$2.00</td>
</tr>
<tr>
<td>2003</td>
<td>$1.00</td>
<td>$1.50</td>
</tr>
<tr>
<td>2004</td>
<td>$2.00</td>
<td>$2.00</td>
</tr>
</tbody>
</table>

a. Using 2002 as the base year, please calculate the Consumer Price Index for each year.

\[ \frac{\text{Cost of Basket 2002}}{\text{Cost of Basket Base yr}} \times 100 = \frac{13}{84.6} \times 100 = \boxed{5.7} \]

\[ \frac{\text{Cost of Basket 2003}}{\text{Cost of Basket Base yr}} \times 100 = \frac{13}{84.6} \times 100 = \boxed{2.5} \]

\[ \frac{\text{Cost of Basket 2004}}{\text{Cost of Basket Base yr}} \times 100 = \frac{13}{84.6} \times 100 = \boxed{6.3} \]

b. What is the annual rate of price inflation from 2003 to 2004?

\[ \Delta \text{CPI} = \frac{131.5 - 84.6}{84.6} = \frac{46.9}{84.6} = 0.56 \]

7. (8 points) a. What is included in M1, the simplest definition of money?

M1 = currency + checking deposits

Suppose that the T-account for First National Bank is as follows:

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserves $100,000</td>
<td>Deposits $500,000</td>
</tr>
<tr>
<td>Loans $400,000</td>
<td></td>
</tr>
<tr>
<td>Total $500,000</td>
<td>Total $500,000</td>
</tr>
</tbody>
</table>

b. If the Fed requires banks to hold 10 percent of deposits as reserves, how much in excess reserves does First National now hold? 

\[ \text{Required Reserves} = 10 \% \times 100,000 = 10,000 \]

\[ \text{Actual Reserves} - \text{Required Reserves} = 50,000 - 10,000 = 40,000 \]

c. If First National decides to hold only the required reserve amount, please write in any changes in the above T-account.

d. What is the numerical value of the money multiplier, based on this example?

\[ \text{Money Multiplier} = \frac{1}{\text{Required Reserve Ratio}} = \frac{1}{0.10} = 10 \]

e. Assume all other banks hold only the required amount of reserves. When First National holds the amount of reserves mentioned in part c, by how much will the nation’s money supply change? (Please note an increase by + and a decrease by -)

\[ 10 \times 50,000 = + \text{(a money supply increase)} \]
8. (8 points) Suppose we see the following information for the economy of Dakotaland:

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumption</td>
<td>1,000</td>
</tr>
<tr>
<td>Savings</td>
<td>400</td>
</tr>
<tr>
<td>Investment</td>
<td>450</td>
</tr>
<tr>
<td>Government Sp.</td>
<td>300</td>
</tr>
<tr>
<td>Taxes</td>
<td>275</td>
</tr>
<tr>
<td>Exports</td>
<td>90</td>
</tr>
<tr>
<td>Imports</td>
<td>115</td>
</tr>
</tbody>
</table>

\[
\text{GDP} = \text{Cons} + \text{Inv} + \text{Govt Sp} + \text{Net Ex}
\]

\[
= \text{Cons} + \text{Inv} + \text{Govt Sp} + (\text{Exports} - \text{Imports})
\]

\[
= \text{Cons} + \text{Inv} + \text{Govt Sp} + (1,150 + 450 + 300 - 115)
\]

\[
= 1,100 + 450 + 300 - 25
\]

\[
= 1725
\]

a. What is the value of GDP?

b. Suppose that the MPC was .6. What would be the numerical value of the multiplier?

\[
\text{Multiplier} = \frac{1}{1 - \text{MPC}} = \frac{1}{1 - .6} = \frac{1}{.4} = 2.5
\]

c. Suppose that Government Spending increased from 300 to 310. Assume that there was no crowding out. What would be the new level of GDP? (The new value, not the change.)

\[
\Delta \text{GDP} = \text{Injection} \times \text{Multiplier} = 10 \times 2.5 = 25
\]

\[
1725 + 25 = 1750
\]

d. What is meant by the term crowding out?

When the government borrows money, there is less available for consumers to spend and businesses to invest.

e. If crowding out did occur, would your answer in part c be higher or lower or the same? Explain why.

It would be lower as Cons & Inv would fall as the Govt borrowed funds.
9. (8 points) Suppose this is the current situation in the market for wheat in the nation of Pinkia. Let us assume there is NO foreign trade.

![Graph showing domestic supply and demand with world price and quantity axes]

a. Clearly show the area of consumer surplus. See a

b. Clearly show the area of producer surplus. See b+c

c. If foreign trade were allowed, would Pinkia export or import grain?
   - Import. World price is lower

d. What would be the change in total surplus? Please show this on the diagram.

e. In this example, are consumers better off or worse off from trade?
   - Better off as prices fall

So a is d. Original no trade a + b + c

new w/ trade a + b + c
10. (8 points). Suppose we see an economy that is currently in equilibrium and at the natural rate of unemployment. Let us suppose nothing is changing and we have no inflation.

![Graph showing LRAS₁, AS₁, AD₂, PI, INFL, Real GDP, and Unem]

a. Suppose the government increases spending without increasing taxes and there is no crowding out. Please show any changes in the diagram to the left by shifting the relevant curves and using a subscript with a "2".

b. Place the number 2 on the graph to the right that would be consistent with the change you made in part a. 

\[ p^\uparrow \text{ so infl. GDP} \uparrow \text{ so unem} \]

c. Draw a line through the 1 and on the graph to the right. What have you constructed?

\[ \text{Phillips Curve} \]

d. In the United States, does the curve ever touch the vertical axis? Why or why not?

\[ \text{No. There is always some unemployment.} \]

e. In the United States, the curve occasionally crosses the horizontal axis. What do values below the horizontal axis mean?

\[ \text{Deflation.} \]

f. Why do we rarely see values below the horizontal axis?

\[ \text{Wages only fall with difficulty.} \]
Multiple Choice. Two points each.

**Table 3-3**

<table>
<thead>
<tr>
<th></th>
<th>Amount Produced in One Day</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baskets</td>
</tr>
<tr>
<td>Montana</td>
<td>4</td>
</tr>
<tr>
<td>Missouri</td>
<td>8</td>
</tr>
</tbody>
</table>

11. **Refer to Table 3-3.** Montana has a comparative advantage in
a. baskets and Missouri has a comparative advantage in birdhouses.
b. birdhouses and Missouri has a comparative advantage in baskets.
c. neither good and Missouri has a comparative advantage in both goods.
d. both goods and Missouri has a comparative advantage in neither good.

**Figure 2-4**

12. **Refer to Figure 2-4.** If the economy moves from point A to point D, the opportunity cost is
a. 10 toasters.
b. 20 toasters.
c. 30 toasters.
d. 30 toothbrushes.

13. A price ceiling is **binding** when it is set
a. above the equilibrium price, causing a shortage.
b. above the equilibrium price, causing a surplus.
c. below the equilibrium price, causing a shortage.
d. below the equilibrium price, causing a surplus.

14. Economies of scale occur when
a. long-run average total costs rise as output increases.
b. long-run average total costs fall as output increases.
c. average fixed costs are falling.
d. average fixed costs are constant.
15. The profit-maximizing rule for a firm in a monopolistically competitive market is to always select the quantity at which
a. marginal revenue is equal to marginal cost. \( \text{True for all firms} \)
b. average total cost is equal to marginal revenue.
c. average total cost is equal to price.
d. average revenue exceeds average total cost.

16. Consider two CEOs from different firms in the same market who collude to fix the price in the market. This collusion violates the
b. Sherman Antitrust Act of 1890.

17. Suppose GDP consists of wheat and rice. In 2005, 20 bushels of wheat are sold at $4 per bushel, and 10 bushels of rice are sold at $2 per bushel. In 2004, the price of wheat was $2 per bushel and the price of rice was $1 per bushel. Using 2004 as the base year, it follows that, for 2005,
   a. nominal GDP is $100, real GDP is $50, and the GDP deflator is 50.
   b. nominal GDP is $50, real GDP is $100, and the GDP deflator is 200.
   c. nominal GDP is $100, real GDP is $50, and the GDP deflator is 200.
   d. nominal GDP is $40, real GDP is $100, and the GDP deflator is 50.

18. Gasoline is considered a final good if it is sold by a
a. gasoline station to a bus company that operates a bus route between San Francisco and Los Angeles.
b. pipeline operator to a gasoline station in San Francisco.
c. gasoline station to a motorist in Los Angeles.
d. All of the above are correct.

19. Cyclical unemployment is closely associated with
a. long-term economic growth.
b. short-run ups and downs of the economy.
c. fluctuations in the natural rate of unemployment.
d. changes in the minimum wage.

20. When the Fed conducts open-market sales,
   a. it sells Treasury bonds (securities), which increases the money supply.
   b. it sells Treasury bonds (securities), which decreases the money supply.
   c. it borrows from member banks, which increases the money supply.
   d. it lends money to member banks, which decreases the money supply.

21. Liquidity refers to
a. the ease with which an asset is converted to the medium of exchange.
b. a measurement of the intrinsic value of commodity money.
c. the suitability of an asset to serve as a store of value.
d. how many times a dollar circulates in a given year.

22. Which of the following does the Federal Reserve not do?
   a. conduct monetary policy
   b. act as a lender of last resort
   c. convert Federal Reserve Notes into gold
   d. serve as a bank regulator
23. To increase the money supply, the Fed could
   a. sell government bonds.
   b. decrease the discount rate.
   c. increase the reserve requirement.
   d. None of the above is correct.

24. If expected inflation is constant, then when the nominal interest rate increases, the real interest rate
   a. increases by more than the change in the nominal interest rate.
   b. increases by the change in the nominal interest rate.
   c. decreases by the change in the nominal interest rate.
   d. decreases by more than the change in the nominal interest rate.

25. Which of the following shifts money demand to the right?
   a. an increase in the price level
   b. a decrease in the price level
   c. an increase in the interest rate
   d. a decrease in the interest rate

26. Which of the following shifts aggregate demand right?
   a. an increase in government expenditures or a decrease in the price level
   b. a decrease in government expenditures or an increase in the price level
   c. an increase in government expenditures, but not a change in the price level
   d. a decrease in the price level, but not an increase in government expenditures

27. The Fisher effect says that
   a. the nominal interest rate adjusts one for one with the inflation rate.
   b. the growth rate of the money supply determines the inflation rate.
   c. real variables are heavily influenced by the monetary system.
   d. All of the above are correct.

28. People go to the bank more frequently to reduce currency holdings when inflation is high, the cost of their time to do this would be counted as
   a. inflation-induced tax distortions.
   b. relative-price variability costs.
   c. shoeleather costs.
   d. menu costs.

29. Given a nominal interest rate of 8 percent, in which case below would you earn the highest after-tax real interest rate?
   a. Inflation is 5 percent; the tax rate is 20 percent.
   b. Inflation is 4 percent; the tax rate is 30 percent.
   c. Inflation is 3 percent; the tax rate is 40 percent.
   d. The after-tax real interest rate is the same for all of the above.

30. Suppose that a central bank increases the money supply. According to the logic of the Phillips curve this should make
   a. prices, output, and employment rise.
   b. prices and output rise, employment fall.
   c. prices rise and output and employment fall.
   d. prices fall, output, and employment rise.

31. Over the long run the Volcker disinflation
   a. shifted the short-run and long-run Phillips curves left.
   b. shifted the short-run, but not the long-run Phillips curve left.
   c. shifted the long-run, but not the short-run Phillips curve left.
   d. None of the above is correct.
32. Most economists believe that a tradeoff between inflation and unemployment exists
   a. only in the short run.
   b. only in the long run.
   c. in both the short and long run.
   d. in neither the short nor long run.

33. For any country, if the world price of computers is higher than the domestic price of computers without trade, that country should
   a. export computers, since that country has a comparative advantage in computers.
   b. import computers, since that country has a comparative advantage in computers.
   c. neither export nor import computers, since that country cannot gain from trade.
   d. neither export nor import computers, since that country already produces computers at a low cost compared to other countries.

34. When a country allows trade and becomes an importer of steel,
   a. the losses of the domestic producers of steel exceed the gains of the domestic consumers of steel.
   b. the losses of the domestic consumers of steel exceed the gains of the domestic producers of steel.
   c. the gains of the domestic producers of steel exceed the losses of the domestic consumers of steel.
   d. the gains of the domestic consumers of steel exceed the losses of the domestic producers of steel.

35. The infant-industry argument
   a. is based on the belief that protecting industries when they are young will pay off later.
   b. is based on the belief that protecting industries producing goods and services for infants is necessary if a country is to have healthy children.
   c. has the support of most economists.
   d. is an argument that is advanced by advocates of free trade.

Extra Credit. You must not have had more than one absence in this part of the course and answer the following correctly.
The basic model of the economy has a Long Run Aggregate Supply curve, an Aggregate Supply curve and an Aggregate Demand curve. The recent decline in the value of houses and the level of the stock market has primarily affected which one of these curves?

\[ AD \text{ (decreased)} \]