Unit 5: Monetary & Fiscal Policy

Part 1 Multiple Choice Test:

Part 2 Multiple Choice Test:

Graphing Test:

Advanced Placement Macroeconomics Exam
Unit 5 - Monetary Policy

(NOT TO BE OUTLINED) Total Textbook Pages covered
1. Chapter 8, page 153 "The Interest Rate - Investment Relationship" to page 158 "The Multiplier Effect"
2. Chapter 14 All except page 274 "Monetary Policy: Evaluation and Issues" to the end "
3. Chapter 11, page 209 (the start of the chapter) to page 213 "Evaluating Fiscal Policy" plus pages 217 to 218 "Crowding-Out Effect"
4. Chapter 27, page 530 "Loanable Funds Theory" to page 534 "Application: Usury Laws"

Pages to be Outlined
Chapter 14, pages 258 - 261, up to but not including "The Consolidation Balance Sheet of the Federal Reserve Banks." - Tentatively due:_____

Graphs
Key Graphs 1 - 29 (21 - 29 are the new ones)

Unit Key Concepts
Monetary policy, money supply, money demand, financial assets (bonds, stocks, etc.), equilibrium interest rate, investment demand curve, interest rate, real output, price level, loanable funds market, real interest rate, nominal interest rate, real output growth, inflation, Fiscal policy, government deficits, national debt, crowding out, inflation, unemployment, inflation unemployment tradeoff,

Crucial Activities for Part 1 Multiple Choice Test
1. Notes- Interest Rates & Investment Demand
2. Macroeconomics Lesson 6 Activity 41 Interest Rates and Rates of Return
3. Macroeconomics Lesson 2 Activity 22 Investment Demand
4. Problems in Investment Demand
5. Student Outline Chapter 14, pages 258 - 261, up to but not including "The Consolidation Balance Sheet of the Federal Reserve Banks."
6. Notes- Monetary Policy
7. Problems in Monetary Policy
8. Practice Test

Crucial Activities for Part 2 Multiple Choice Test
9. Guided Reading - Fiscal Policy
10. Macroeconomics Lesson 8 Activity 30 The Tools of Fiscal Policy
11. Macroeconomics Lesson 8 Activity 31 Discretionary and Automatic Fiscal Policy
12. Monetary and Fiscal Policy Review
13. Guided Reading - Loanable Funds Theory
14. Lecture Notes - Crowding Out
15. Macroeconomics Lesson 1 Activity 44 Crowding Out: A Graphical Representation
16. Macroeconomics Lesson 1 Activity 45 Graphing Monetary and Fiscal Policy Interactions
17. Practice Test

Name _____ Hour _____

Note Packet - Interest Rates & Investment Demand

A. What is Investment (Ig)?

1. Investment is money that businesses spend on:

*a.   b. All new construction   c. Unsold inventories

B. The Expected Rate of Return

1. How do businesses make investment decisions?

       They do a cost / benefit analysis

       If the benefit > cost, then they WILL / WILL NOT invest.
       If not, they WILL / WILL NOT invest.

2. What is the benefit of investing?

a. The benefit of investing seems to be the rate or return.

       Rate of return =

       Profit = Total _____ (money earned) from the investment) - The _____ of the investment

       Example: A machine costs $100 to buy and will bring in $110 in revenue.

       Profit = $110 - $100 =

       Rate of return = $10 / $100 = .10 or

       The benefit of this investment seems to be 10%

b. The benefit of investing is actually the _____ rate of return.

       Businesses don't actually know what the true profit or cost will be. They only have expectations.

       Therefore, we simply add the term 'expected' to these formulas:

       Expected Rate of Return = Expected profit / Expected cost

       Expected Profit = Expected total revenue / The expected cost

C. The Real Interest Rate

1. In the overall cost / benefit analysis, what is the cost of investing?

a. Businesses borrow the money to invest; therefore, the cost seems to be the _____ on the loan;

aka, the _____ interest rate.

       The nominal interest rate is simply the interest rate that the bank charges for the loan.

Example, if a business borrows $100 at a 7% interest rate, the nominal interest rate is _____%.

This nominal interest rate seems to be the cost of the investment.
b. However, there is another benefit of borrowing and spending money now: _____.

- By borrowing and spending the money now, the business avoids paying a higher price for that item in the future.
- And the money the business pays back has less spending power than the money it borrowed.
- So, by borrowing money, the business 'loses' the nominal interest rate, but it 'gains' the inflation rate.
- Therefore, we must subtract the inflation rate from the nominal interest rate to see the actual cost of investing.

c. The real cost of investing (and the real benefit of lending) is the real interest rate:

Real interest rate =

Example: If the bank charges a nominal interest rate of 7% and the inflation rate is 3%, the real interest rate is:

4% = 7% - 3%

This is the real cost of the investment to the business (and the real benefit of lending to the bank.)

However, businesses and banks do not know what the inflation rate will actually be. They only have expectations. Therefore, they cannot know the real interest rate at the time the loan is made. The best they can do is come up with the expected real interest rate:

Expected Real Interest Rate = The nominal interest rate - the expected inflation rate.

D. When deciding whether or not to invest, business do a cost / benefit analysis using the **expected** cost and benefit.

The expected cost of investing = the expected real interest rate.

The expected benefit of investing = the expected rate of return

If the expected rate of return > the expected real interest rate, they WILL / WILL NOT invest.

If not, they WILL / WILL NOT invest.

E. Determining whether or not the investment was profitable.

In hindsight, after the actual profit and inflation rate are known, businesses (and banks) can calculate the real interest rate and the actual rate of return and see if the investment (and the loan) was profitable or not.

F. Examples:

1. Expected Profit = $110 - $100 =

   Expected Rate of Return = $10 / $100 =

   Expected inflation rate is 3% and the bank charges a nominal interest rate of 7%.

   The Expected Real Interest Rate is

   The bank expects to make a real 4%.

   The Benefit to the business of investing (10%) > the cost (4%); therefore the business
   WILL / WILL NOT invest, expecting a profit of _____ %. (10% expected rate of return - 4% expected
   real interest rate)

2. If the real rate of return was 10% and the inflation rate ended up being 1%, the cost of the investment would
be:
   Real interest rate =

   The bank makes a real 6%.

   The profit to the business would be

3. If the real rate of return was 10% and the inflation rate ended up being 8%

   Real interest rate =

   The bank loses a real 1%

   The profit to the business would be:

4. If the real rate of return ends up being 5% and the inflation rate ends up being 1%

   Real interest rate =

   The bank makes a real 6%

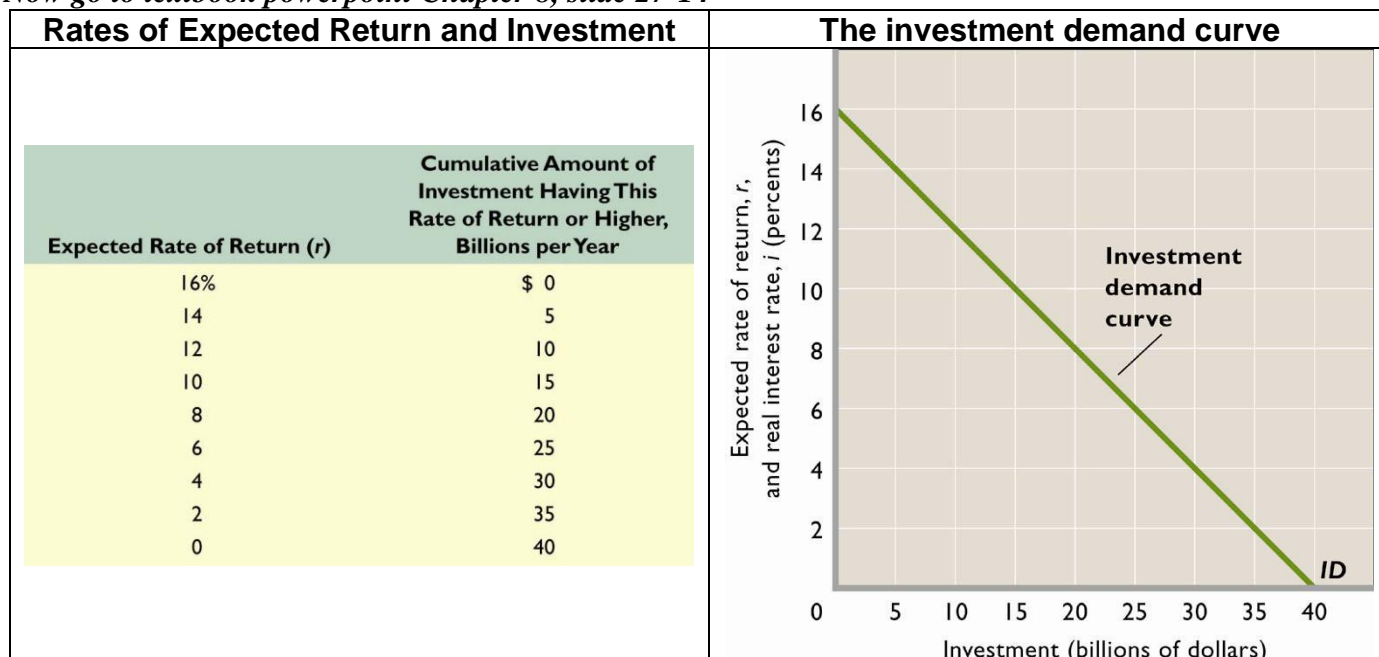   The profit to the business would be

G. Banks try to negotiate a HIGH / LOW nominal interest rate to be sure that the loan is profitable after
inflation, and businesses try to negotiate a HIGH / LOW nominal interest rate so that the investment is
profitable after the return on the investment and inflation.

H. For simplicity's sake, some AP test questions and preparatory activities will ask you to determine if an
investment would be profitable while giving you the real rate of return and the real interest rate, as if they were
known from the beginning.)

I. Investment Demand Curve (ID)

1. What is the shape (slope) of the Investment Demand Curve?

2. Why?

a. When interest rates are high, MORE / FEWER investments are profitable.

b. when interest rates are low, MORE / FEWER investments are profitable.

c. Alternatively, there are MANY / FEW investments that yield high rates of return, and MANY / FEW that yield low rates of return.

* Now go to textbook powerpoint Chapter 8, slide 27-14

Rates of Expected Return and Investment		The investment demand curve
Expected Rate of Return (r)	**Cumulative Amount of Investment Having This Rate of Return or Higher, Billions per Year**	
16%	$ 0	
14	5	
12	10	
10	15	
8	20	
6	25	
4	30	
2	35	
0	40	

3. The Y axis tells us:

a. The Real Interest Rate

b. The Expected Rate of Return of Each Dollar of Investment Money Demanded.

    1.) Example: If interest rates were 10%, how much money would be demanded for investment projects?

    2.) This means that the investors who are willing to borrow 15 billion dollars to invest must believe that their expected rate of return is …

    3.) So the real interest rate axis also tells us the expected rate of return for these investors demanding the 15 billion dollars. They expect a rate of return equal to or higher than the real interest rate of 10%.

    4.) How many dollars worth of investment have an expected rate or return of at least 2%?

    5.) This amount includes how many investment dollars with the following ERRs?

a. 2 to 4%	b. 4 to 6%	c. 6 to 8%	c. 8 to 16%	d. What do these add up to?

4. Changes in the real interest rate increase or decrease the amount of investment money demanded. This is

represented as movement _____ the investment demand curve.

5. Factors that cause businesses to invest more or less when the real interest rate remains the same _____
the investment demand curve to the right or the left.

In general, these are factors that increase or decrease the _____

Although they are to read it on their own, the text assumes they know what #1 is, but they often don't, so I do give them the explanation below. They can do the rest.

| J. Factors that Increase or Decrease Investment Demand – pg 156 |
| :--- |
| **1. Acquisition, Maintenance, and Operating costs:** |
| A. (What does this mean?): **THE COST OF PURCHASING, USING, AND UPKEEP OF NEW CAPITAL** |
| B. 1.When these costs rise, the expected rate of return INCREASES / **DECREASES** and investment demand shifts to the LEFT / RIGHT

2. - When these costs fall, the expected return INCREASES / DECREASES and investment demand shifts to the LEFT / RIGHT |
| **2. Business Taxes** |
| A. 1. When business taxes increase, the expected rate of return INCREASES / DECREASES and investment demand shifts to the LEFT / RIGHT

2. When business taxes decrease, the expected rate of return INCREASES / DECREASES and investment demand shifts to the LEFT / RIGHT |
| **3. Technological Change** |
| A. 1. As technology improves, the expected rate of return INCREASES / DECREASES and investment demand shifts to the LEFT / RIGHT

2. Technology typically doesn't get worse, so there is no second sentence here. |
| **4. Stock of Capital Goods on Hand** |
| A. - When there is a lot of excess capacity (a lot of unused existing capital), the expected rate of return INCREASES / DECREASES and investment demand shifts to the LEFT / RIGHT

B. When there is little excess capacity (not much unused existing capital), the expected rate of return INCREASES / DECREASES and investment demand shifts to the LEFT / RIGHT |
| 5. Expectations |
| A. 1. If businesses believe that good economics times are ahead, the expected rate of return INCREASES / DECREASES and investment demand shifts to the LEFT / RIGHT

1. If businesses believe that bad economic times are ahead, the expected rate of return INCREASES / DECREASES and investment demand shifts to the LEFT / RIGHT |

K. The Volatility of Investment - The most volatile of all determinants of aggregate demand!!!
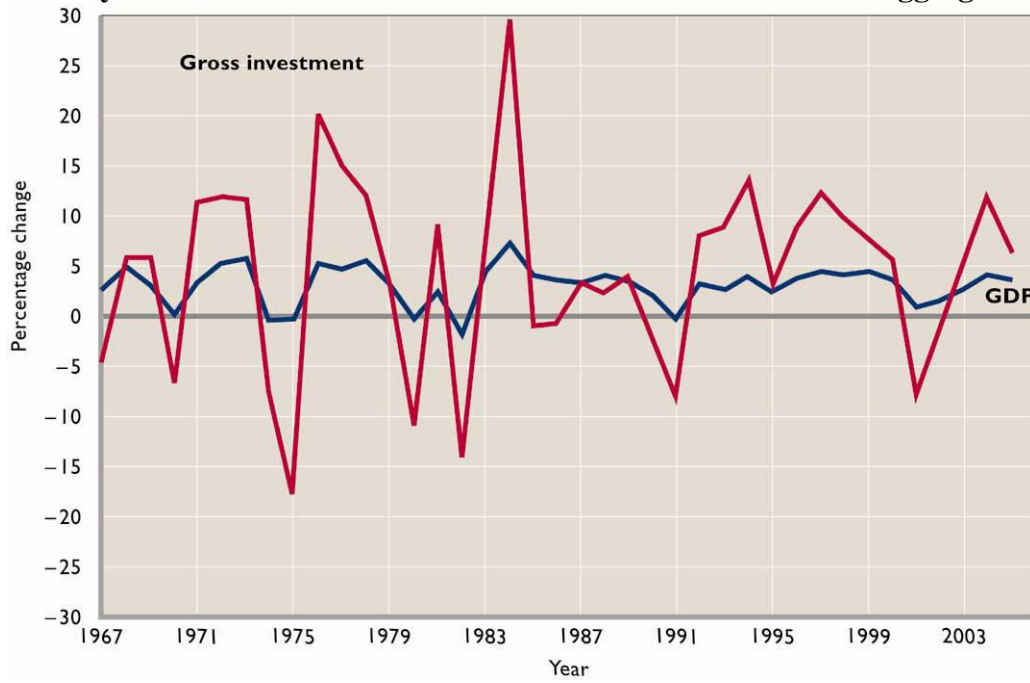
(Take detailed notes on the reasons for the volatility of investment on pages 157 - 158.)
1.

2.

3.

4.

Real Interest Rates and Nominal Interest Rates

If you bought a one-year bond for $1,000 and the bond paid an interest rate of 10 percent, at the end of the year would you be 10 percent wealthier? You will certainly have 10 percent more money than you did a year earlier, but can you buy 10 percent more? If the price level has risen, the answer is that you cannot buy 10 percent more: If the inflation rate were 8 percent, then you could buy only 2 percent more; if the inflation rate were 12 percent, you would be able to buy 2 percent less! The *nominal interest rate* is the rate the bank pays you on your savings or the rate that appears on your bond or car loan. The *actual real interest rate* represents the change in your purchasing power. The *expected real interest rate* represents the amount you need to receive in real terms to forgo consumption now for consumption in the future.

The relationship between the nominal interest rate, the real interest rate and the inflation rate can be written as

$$r = i - \pi$$

where r is the real interest rate, i is the nominal interest rate and π is the inflation rate. This relationship is called the *Fisher Equation*. In the example above with the 10 percent bond, if the inflation rate were 6 percent, then your real interest rate (the increase in your purchasing power) would be 4 percent.

Obviously banks and customers do not know what inflation is going to be, so the interest rates on loans, bonds, etc. are set based on expected inflation. The expected real interest rate is

$$r^e = i - \pi^e$$

where π^e is the expected inflation rate. The equation can be rewritten as

$$i = r^e + \pi^e$$

A bank sets the nominal interest rate equal to its expected real interest rate plus the expected inflation rate. However, the real interest rate it actually receives may be different if inflation is not equal to the bank's expected inflation rate.

The equation of exchange is MV = PQ. If we assume that velocity (V) is constant, then changes in the money supply (M) result in changes in the nominal output (PQ). The equation of exchange can be rewritten in terms of percentage change to be

percentage change in money supply + percentage change in velocity =
percentage change in price level + percentage change in real output

The first term, *percentage change in the money supply,* is controlled by the monetary authority (Federal Reserve). Assuming that velocity is constant, the second term is zero. The third term is the inflation rate and the fourth term is the growth in real output. Output (Q) is determined by the factors of production, technology and the production function. Output can be taken as given. Therefore, the percentage change in the money supply results in an equal percentage change in the price level.

Increases in the money supply by the Federal Reserve will result in increases in the price level, or inflation. Using the Fisher Equation, the increase in inflation would result in an increase in the nominal interest rate or a decrease in the real interest rate or in some combination. This is known as the *Fisher Effect,* or *Fisher Hypothesis.* Evidence indicates that increases in the inflation rate result in increases in the nominal interest rate in the long run. Increases in the money supply are translated into increases in the price level and increases in the nominal interest rate *in the long run.*

We know that

■ in the short run, increases in the money supply decrease the nominal interest rate and real interest rate;

■ in the long run, increases in the money supply will result in an increase in the price level and the nominal interest rate.

Name _____ Hour _____

Interest Rates and Rates of Return

1. Use the formula's in your notes to fill in the missing values in each column.

Year	Nominal Interest Rate	Expected Inflation Rate	Expected Real Interest Rate	Expected Rate of Return (see below)	Check each year the investment would be profitable for the business	Check each year the loan would be profitable for the bank	Assume that actual inflation was 1% higher than expected. Write the actual **Real Rate of Return.**	Assume the machine did bring in $20,400 in revenue. With the actual 1% higher inflation rate, check each year the investment would be profitable for the business	Check each year the loan would be profitable for the bank
1991	5.41 %	3.12%							
1992	3.46 %	2.30							
1993	3.02 %	2.42							
1994	4.27 %	2.05							
1995	5.51 %	2.12							
1996	5.02 %	1.87							
1997	5.07 %	1.85							
1998	4.78 %	1.14							
1999	4.6 %	1.56							
2000	5.82 %	2.29							
2001	3.39	1.96							

Expected Rate of Return Column: Assume that a new machine will cost $20,000 for a business to buy, is expected to bring in $20,400 in revenue for the year, and that the same identical opportunity exists every year from 1991 to 2001. Calculate the expected rate or return and write it in column (just once big since we're assuming it is the same for every year).

3. (You can just 'eyeball' the table for this question. You don't actually have to do the math for each row) If the actual inflation rate was 4% higher than expected rather than just 1%:
a. How many investments would be profitable for businesses?

b. How many loans would be profitable for banks?

2. When the inflation rate was higher than expected, MORE / FEWER investments were profitable for businesses and MORE / FEWER loans were profitable for banks.

3. Besides changing inflation rates, what else could make more or fewer investments profitable for businesses?

4. Is there anything besides changing inflation rates that could make more or fewer loans profitable for banks?

Name _____ Hour _____

Investment Demand

Investment spending consists of spending on new buildings, machinery, plant and equipment. Investment spending is a part of total spending or aggregate expenditures. Any increase in investment spending would necessarily increase total spending or aggregate expenditures.

Decisions on investment spending are based on a comparison of marginal cost and marginal benefit: If you expect a particular project to yield a greater benefit than cost, you will undertake it. One of the costs associated with investment spending is the interest expense on borrowed money to engage in the project.

Part A

1. Figure 22.1 lists the expected cost of various projects and the associated expected benefit. Fill in the decision column with Yes if you would undertake the project and No if you would not. The first example has been completed for you.

✳ Figure 22.1
Comparison of Costs and Benefits of Different Projects

Cost	Benefit	Decision
$65	$20	No
$55	$30	
$45	$40	
$35	$50	
$25	$60	

2. If interest rates fell and the cost associated with the project fell by $15 at each level, indicate in Figure 22.2 which projects you would undertake. The first example has been completed for you.

✳ Figure 22.2
Comparison of Project Costs and Benefits with Decrease in Costs

Cost	Benefit	Decision
$50	$20	No
	$30	
	$40	
	$50	
	$60	

Part B

Figure 22.3 lists the dollar value of investment projects that would be profitable at each interest rate.
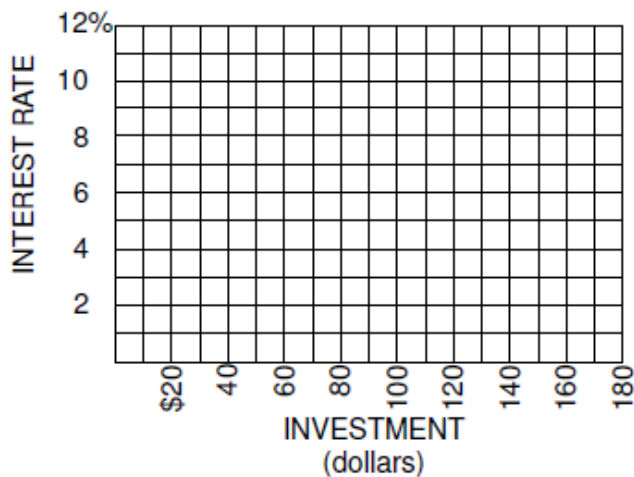
✳ Figure 22.3
Country A and Country B Investment Data

Interest Rate	Country A Investment	Country B Investment
10%	$10	$70
8	50	75
6	90	80
4	130	85
2	170	90

✳ Figure 22.4
Investment Demand Curves

3. Plot the investment demand curve for Country A on Figure 22.4 and label it I_A.

4. Plot the investment demand curve for Country B on Figure 22.4, and label it I_B.

5. Which country would experience the larger increase in the amount of investment spending if interest rates in each country dropped from 8 percent to 6 percent?

6. How would you characterize the responsiveness of investment spending to the interest rates in Country A compared with Country B?

7. Assuming an MPC of 75 percent, what would be the effect on real GDP in Country A and Country B if real interest rates decline from 8 percent to 6 percent?

8. (Note to students and instructors, Question 8 has been eliminated from your packet)

9. Looking at the graph you drew, the investment demand curve is downward sloping in both Country A and Country B. Why does the investment demand curve have a downward slope?

Part C

Use Figure 22.5 to help answer questions 10, 11 and 12.

✳ Figure 22.5
Shift in Investment Demand Curve
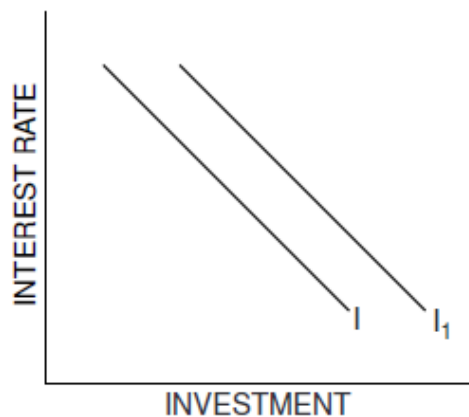
10. If interest rates rise, will the investment demand curve shift to a new location? If so, in what direction?

11. The shift in the investment demand curve shown in Figure 22.5 (I to I_1) represents a new location for the entire curve. How would you interpret the difference between movement along an existing investment demand curve and a shift in the location of the curve?

12. List two factors that could cause a shift in the investment demand curve as shown in Figure 22.5.

Name _____ Hour _____

Problems in Investment Demand

A. Deciding whether or not to invest.

1. Suppose a handbill publisher can buy a new duplicating machine for $500 and the duplicator has a 1-year life. The machine is expected to contribute $550 to the year's net revenue. What is the expected rate of return?

2. If the real interest rate at which funds can be borrowed to purchase the machine is 8 percent, will the publisher choose to invest in the machine? Explain.

B. Graphing the Investment Demand Curve.

1. Assume there are no investment projects in the economy which yield an expected rate of return of 25 percent or more. There are $10 billion of investment projects yielding expected rate of return of between 20 and 25 percent; another $10 billion yielding between 15 and 20 percent; another $10 billion between 10 and 15 percent; and so forth. Use this data to complete the table on the left. **Note: You must add / cumulate the data. Do not just write 10, 10, 10 in each box in the Investment Dollars Demanded Column**. Then, draw a graph of investment demand on the right. Fill in the expected rate of return / interest rate data on the vertical axis and the amount of investment dollars demanded data on the horizontal axis.

The Investment Demand Curve

Expected Rate of Return	Investment Dollars Demanded
25 %	$0
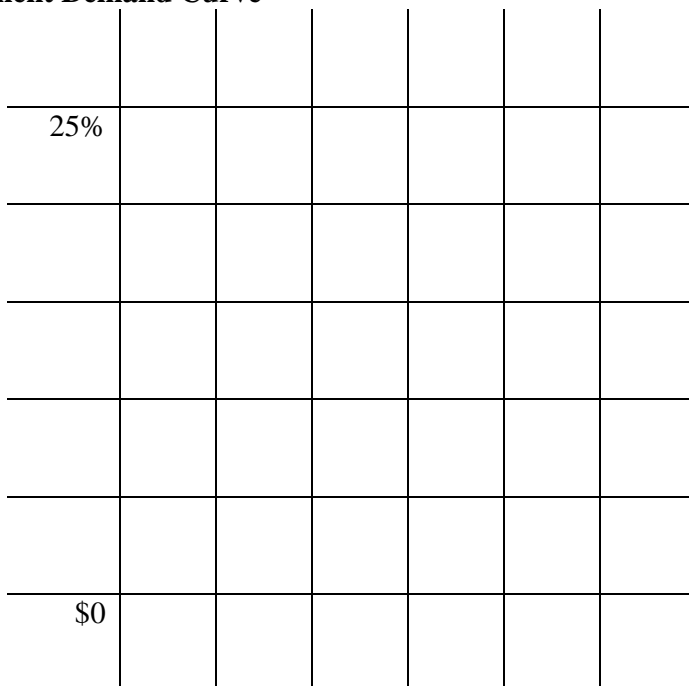
2. What will be the level of aggregate investment if the real interest rate is…

(a) 15 percent?	(b) 10 percent?	(c) 5 percent?

C. Shifts in the Investment Demand Curve - For each scenario, fill in the required information.

1. New production robots are very fuel efficient (they don't use a lot of electricity to operate)

Draw an up or down arrow next to the factor that is effected			Draw an up or down arrow to show the effect.	Draw the shift in the investment demand curve. Fully label everything (at least once.)
Acquisition, Maintenance, And Operating Costs	Business Taxes	Expectations of future business conditions (check one, no arrow)	Expected Rate of Return	
Techno-logical Change	Stock of Capital Goods on Hand	____ Are good ____ Are bad		

2. Businesses currently own a lot of unused capital.

Acquisition, Maintenance, And Operating Costs	Business Taxes	Expectations of future business conditions (check one, no arrow)	Expected Rate of Return	
Techno-logical Change	Stock of Capital Goods on Hand	____ Are good ____ Are bad		

3. New production robots are twice as productive as the ones already in use.

Acquisition, Maintenance, And Operating Costs	Business Taxes	Expectations of future business conditions (check one, no arrow)	Expected Rate of Return	
Techno-logical Change	Stock of Capital Goods on Hand	____ Are good ____ Are bad		

4. Businesses expect a recession is coming with a large drop in future sales.

Acquisition, Maintenance, And Operating Costs	Business Taxes	Expectations of future business conditions (check one, no arrow)	Expected Rate of Return	
Techno-logical Change	Stock of Capital Goods on Hand	____ Are good ____ Are bad		

5. Businesses have no excess capacity (no unused capital lying around)

Acquisition, Maintenance, And Operating Costs	Business Taxes	Expectations of future business conditions (check one, no arrow)	Expected Rate of Return	
Techno-logical Change	Stock of Capital Goods on Hand	____ Are good ____ Are bad		

6. The government decides to lower the national debt by raising business taxes.

Acquisition, Maintenance, And Operating Costs	Business Taxes	Expectations of future business conditions (check one, no arrow)	Expected Rate of Return	
Techno-logical Change	Stock of Capital Goods on Hand	____ Are good ____ Are bad		

7. New production robots require a lot of maintenance and upkeep

Acquisition, Maintenance, And Operating Costs	Business Taxes	Expectations of future business conditions (check one, no arrow)	Expected Rate of Return	
Techno-logical Change	Stock of Capital Goods on Hand	____ Are good ____ Are bad		

8. Businesses expect economic recovery is on the way with a large increase in consumer spending.

Acquisition, Maintenance, And Operating Costs	Business Taxes	Expectations of future business conditions (check one, no arrow)	Expected Rate of Return	
Techno-logical Change	Stock of Capital Goods on Hand	____ Are good ____ Are bad		

Name _____ Hour _____

Notes - Monetary Policy

I. Monetary Policy: Actions by the Fed's Open Market Committee (FOMC) to increase or decrease the money supply (M1), in order to increase or decrease aggregate demand, in order to combat recession or inflation.

A. Recall the formula for the total money supply and the monetary base:

1. The Monetary Base (M0 or MB) =

2. Total Money Supply (M1) =

      a. To change the money supply, the Fed must either:
          1.) Change the Monetary Base (M0)

          2.). Change the Monetary Multiplier

II. Two kinds of Monetary Policy:

A. Expansionary Monetary Policy – _____ the money supply.

	1. Effect? It shifts AD to the _____ (more on this later), increasing equilibrium GDP output (and increasing the price level). 2. Why do this? To battle _____ (shrinking GDP usually with high unemployment).

B. Contractionary or Restrictive Monetary Policy - Decreasing the money supply.

	1. Effect? It shifts AD to the <u>left</u>, decreasing the *equilibrium* price level (and decreasing equilibrium GDP output). 2. Why do this? To battle _____. 3. Why does this decrease the equilibrium price level but not actual price level? _____.

III. 3 Tools of Monetary Policy?

A. _____ - the percentage of checkable deposits that banks must keep in reserve.

1. Altering the Reserve Ratio changes the money supply by changing the _____.

    a.) Recall the formula for the monetary multiplier:
        The Monetary Multiplier = 1 / The Reserve Ratio

    b.) Therefore, changing the reserve ratio changes the monetary multiplier

2. Two possible changes the reserve ratio:

    a. Increasing the reserve ratio: → a LARGER / SMALLER Monetary Multiplier → the banking system creating MORE / FEWER excess reserves→ MORE / FEWER loans made = LARGER / SMALLER money supply.

    b. Decreasing the reserve ratio: → a LARGER / SMALLER Monetary Multiplier → the banking system creating MORE / FEWER excess reserves→ MORE / FEWER loans made = LARGER / SMALLER money supply.

B. Altering the Discount Rate
    1. One way for a bank to acquire more reserves is by borrowing money from the Fed.

    2. The interest that the fed charges for these loans is called the discount rate (Note, it is an interest rate. It is NOT a discount)

    3. Altering the discount rate changes the money supply by changing the _____.

    4. Two possible changes the discount rate:
        a. Raising the discount rate = The Fed charging banks a HIGHER / LOWER interest rate to borrow money → banks borrowing MORE / LESS money → a(n) INCREASE / DECREASE in bank reserves = a(n) INCREASE / DECREASE in M0 → banks having MORE / FEWER excess reserves → MORE / FEWER loans made = LARGER / SMALLER money supply.

        b. Lowering the discount rate = The Fed charging banks a HIGHER / LOWER interest rate to borrow money → banks borrowing MORE / LESS money → a(n) INCREASE / DECREASE in bank reserves = a(n) INCREASE / DECREASE in M0 → banks having MORE / FEWER excess reserves → MORE / FEWER loans made = LARGER / SMALLER money supply.

C. _____ - Buying or selling _____.

1. Government securities and money.
    a. Government securities are interest earning loans made by the Treasury Department to finance past budget deficits.

    b. Private citizens and commercial banks buy these bonds (with money) as investments.

    c. These Government securities are not money. They cannot be used to make purchases.

2. Two possible Open Market Operations:
    a. The Fed buying Government Securities from banks → Banks having

MORE / LESS money = a(n) INCREASE / DECREASE in bank reserves =

a(n) INCREASE / DECREASE in M0 → banks having MORE / FEWER excess reserves →

MORE / FEWER loans made = LARGER / SMALLER money supply.

    b. The Fed selling Government Securities from banks → Banks having

MORE / LESS money = a(n) INCREASE / DECREASE in bank reserves =

a(n) INCREASE / DECREASE in M0 → banks having MORE / FEWER excess reserves →

MORE / FEWER loans made = LARGER / SMALLER money supply.

3. If the Fed bought securities from the public, this would also increase M0. And we assume that the public will eventually deposit the money in the bank, increasing bank reserves and resulting in the same story as above.
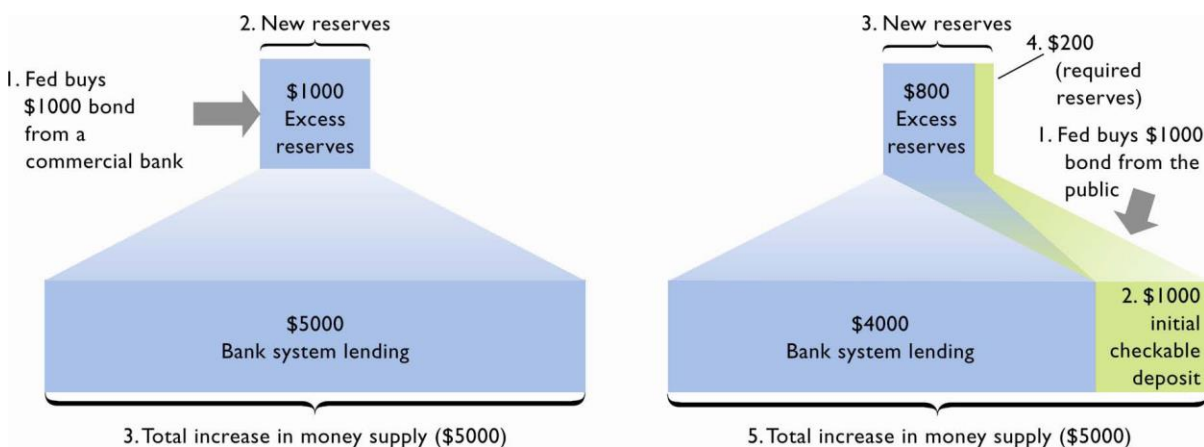
4. Memory trick regarding open market operations and the money supply:
    Buying makes big. Selling makes small.

5. <u>Open Market Operations</u> is the most widely used method of the Fed's FOMC to alter the money supply.

IV. How Monetary Policy shifts the Aggregate Demand Curve

    A. The effects of Contractionary Monetary Policy:

        1. Contractionary Monetary Policy INCREASES / DECREASES a banks excess reserves, their lendable money.

        2. When banks have few excess reserves to loan out, they RAISE / LOWER the interest rate on the loans that they do make.

        3. Which component(s) of aggregate demand increase or decrease when interest rates increase or decrease?

                _____ (and some C consumption too)

        4. So, Contractionary Monetary Policy → MORE / FEWER excess reserves → HIGHER / LOWER interest rates → an INCREASE / DECREASE in Ig → an INCREASE / DECREASE in AD.

            a. This will combat RECESSION / HIGH INFLATION.

    A. The effects of Expansionary Monetary Policy:

        4. Expansionary Monetary Policy → MORE / FEWER excess reserves → HIGHER / LOWER interest rates → an INCREASE / DECREASE in Ig → an INCREASE / DECREASE in AD.

            a. This will combat RECESSION / HIGH INFLATION
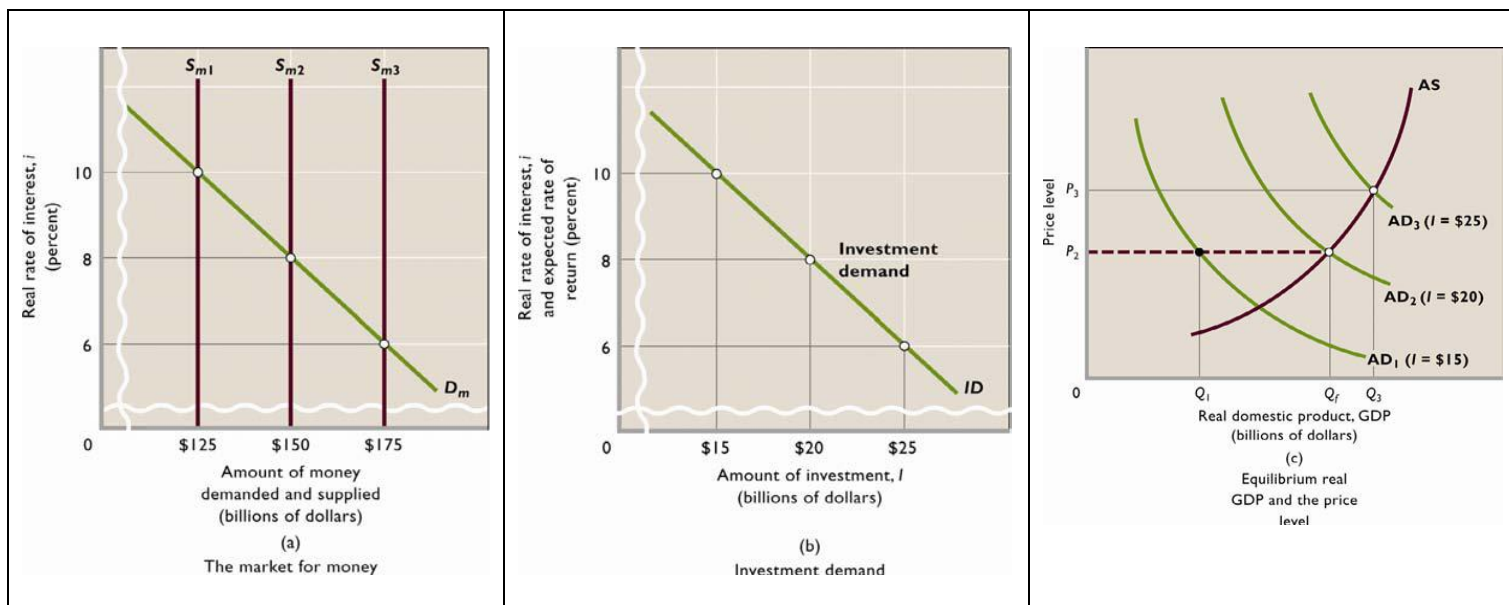
IV. _____

    A. It is the interest rate that commercial banks charge each other when they lend each other money.

    B. This is the interest rate that the Fed targets the most directly with monetary policy.

    C. If they can get this interest rate to move where they want it, they know that the other interest rates are also moving …

(1) Expansionary Monetary Policy	(2) Restrictive Monetary Policy
Problem: unemployment and recession	*Problem*: inflation
↓	↓
Federal Reserve buys bonds, lowers reserve ratio, or lowers the discount rate	Federal Reserve sells bonds, increases reserve ratio, or increases the discount rate
↓	↓
Excess reserves increase	Excess reserves decrease
↓	↓
Federal funds rate falls	Federal funds rate rises
↓	↓
Money supply rises	Money supply falls
↓	↓
Interest rate falls	Interest rate rises
↓	↓
Investment spending increases	Investment spending decreases
↓	↓
Aggregate demand increases	Aggregate demand decreases
↓	↓
Real GDP rises	Inflation declines

Name _____ Hour _____

Problems in Monetary Policy

Directions: Read the scenarios and fill in the required information in each box. Assume that there is no problem unless the given information indicates one. Assume that the natural rate of unemployment is 5% or a bit less, and that an acceptable inflation rate is 3% or less. Note: Recession and Inflation at the same time is called "Stagflation." History has shown that it is best to treat the inflation aspect. You will need your formula sheet and this helpful formulas:

Monetary Base (M0) = currency held by the public + bank reserves.   The Monetary Multiplier = 1 / The Reserve Ratio

1. The Inflation Rate is 3%. The Unemployment Rate is at 10%. GDP has gone from 12 Trillion to 11.5 Trillion to 10.75 Trillion.

A. Circle Which Problem is indicated.		B. What kind of Monetary Policy should the Fed do (Check one)?	C. How could the Fed could do this (Check one).	This changes M1 by (do above or below 'Or'):
High Inflation Recession		_____ Expansionary (Increase M1 Money Supply) _____ Contractionary (Decrease M1 Money Supply _____ Don't change M1	Open Market Operations: _____ Buy Gov. Securities.	Increasing / Decreasing Monetary base Which Increases / Decreases Excess Reserves
Stagflation No Problem			_____ Sell Gov Securities. _____ Do Nothing	**Or** Increasing / Decreasing the Monetary Multiplier
Effect this would have on:		**F. Effect this would have on Investment Ig (Draw an arrow up or down)**	**G. Effect this would have on aggregate demand (Draw an arrow left or right)**	**H. Effect this would have on each (Draw an arrow up or down next to each)**
Federal Funds rate	All interest rates			
Increase	Increase			GDP .
Decrease	Decrease			Price Level

2. The CPI has gone from 102 to 113. Calculated inflation = _____. Frictional Unemployment = 3%. Structural = 2%. Cyclical = 0%

A. Problem?		B. Monetary Policy?	C. How?	This changes M1 by…
High Inflation Recession		_____ Expansionary (Increase M1 Money Supply) _____ Contractionary (Decrease M1 Money Supply _____ Don't change M1	Open Market Operations: _____ Buy Gov. Securities. _____ Sell Gov Securities. _____ Do Nothing	Increasing / Decreasing Monetary base Which Increases / Decreases Excess Reserves **Or** Increasing / Decreasing the Monetary Multiplier
Stagflation No Problem				
Effect this would have on:		**F. Effect on Ig**	**G. Effect on AD**	**H. Effect on each:**
Federal Funds rate	All interest rates			GDP
Increase	Increase			
Decrease	Decrease			Price Level

3. The percentage change in the CPI is 3%. The labor force is 160 and 8 people are unemployed. Unemployment Rate = _____

A. Problem?		B. Monetary Policy?	C. How?	This changes M1 by…
High Inflation Recession		_____ Expansionary (Increase M1 Money Supply) _____ Contractionary (Decrease M1 Money Supply _____ Don't change M1	_____ Increase the Reserve Requirement (aka Ratio) _____ Decrease the Reserve Requirement _____ Do Nothing	Increasing / Decreasing Monetary base Which Increases / Decreases Excess Reserves **Or** Increasing / Decreasing the Monetary Multiplier
Stagflation No Problem				
Effect this would have on:		**F. Effect on Ig**	**G. Effect on AD**	**H. Effect on each:**
Federal Funds rate	All interest rates			GDP
Increase	Increase			
Decrease	Decrease			Price Level

4. Cyclical unemployment is 4%

A. Problem?		B. Monetary Policy?	C. How?	This changes M1 by…
High Inflation Recession Stagflation No Problem		_____ Expansionary (Increase M1 Money Supply) _____ Contractionary (Decrease M1 Money Supply _____ Don't change M1	____Increase the Discount Rate _____Decrease the Discount Rate ____Do Nothing	Increasing / Decreasing Monetary base Which Increases / Decreases Excess Reserves **Or** Increasing / Decreasing the Monetary Multiplier

Effect this would have on:		**F. Effect on Ig**	**G. Effect on AD**	**H. Effect on each:**
Federal Funds rate	All interest rates			GDP
Increase	Increase			
Decrease	Decrease			Price Level

5. The GDP Price Index (which closely matches the CPI) has gone from 147 to 158.

A. Problem?		B. Monetary Policy?	C. How?	This changes M1 by…
High Inflation Recession Stagflation No Problem		_____ Expansionary (Increase M1 Money Supply) _____ Contractionary (Decrease M1 Money Supply _____ Don't change M1	_____ Increase the Reserve Requirement _____ Decrease the Reserve Requirement _____ Do Nothing.	Increasing / Decreasing Monetary base Which Increases / Decreases Excess Reserves **Or** Increasing / Decreasing the Monetary Multiplier

Effect this would have on:		**F. Effect on Ig**	**G. Effect on AD**	**H. Effect on each:**
Federal Funds rate	All interest rates			GDP
Increase	Increase			
Decrease	Decrease			Price Level

6. The CPI goes from 112 to 124. Unemployment is at 4%.

A. Problem?		B. Monetary Policy?	C. How?	This changes M1 by…
High Inflation Recession Stagflation No Problem		_____ Expansionary (Increase M1 Money Supply) _____ Contractionary (Decrease M1 Money Supply _____ Don't change M1	____Increase the Discount Rate ____Decrease the Discount Rate ____Do Nothing	Increasing / Decreasing Monetary base Which Increases / Decreases Excess Reserves **Or** Increasing / Decreasing the Monetary Multiplier

Effect this would have on:		**F. Effect on Ig**	**G. Effect on AD**	**H. Effect on each:**
Federal Funds rate	All interest rates			GDP
Increase	Increase			
Decrease	Decrease			Price Level

Continue →

7. GDP has been shrinking for 3 consecutive quarters (3 month periods). Unemployment is at 9%. Annual change in CPI is at 2%.

| A. Problem?		B. Monetary Policy?	C. How?	This changes M1 by…
High Inflation Recession Stagflation No Problem		_____ Expansionary (Increase M1 Money Supply) _____ Contractionary (Decrease M1 Money Supply _____ Don't change M1	_____ Increase the Reserve Requirement _____ Decrease the Reserve Requirement _____ Do Nothing.	Increasing / Decreasing Monetary base Which Increases / Decreases Excess Reserves **Or** Increasing / Decreasing the Monetary Multiplier
Effect this would have on:		**F. Effect on Ig**	**G. Effect on AD**	**H. Effect on each:**
Federal Funds rate	All interest rates			GDP Price Level
Increase	Increase			
Decrease	Decrease			

8. Inflation is 9%. GDP has been at 191billion, 187billion, and 181billion for the last 3 years respectively. Unemployment is at 12%.

A. Problem?		B. Monetary Policy?	C. How?	This changes M1 by…
High Inflation Recession Stagflation No Problem		_____ Expansionary (Increase M1 Money Supply) _____ Contractionary (Decrease M1 Money Supply _____ Don't change M1	Open Market Operations: _____ Buy Gov. Securities. _____ Sell Gov Securities. _____ Do Nothing	Increasing / Decreasing Monetary base Which Increases / Decreases Excess Reserves **Or** Increasing / Decreasing the Monetary Multiplier
Effect this would have on:		**F. Effect on Ig**	**G. Effect on AD**	**H. Effect on each:**
Federal Funds rate	All interest rates			GDP Price Level
Increase	Increase			
Decrease	Decrease			

Monetary Policy Review - Reference Page
(Always start from equilibrium, so ignore the price level of 92, points a and b, and GDP output levels 502 and 514)
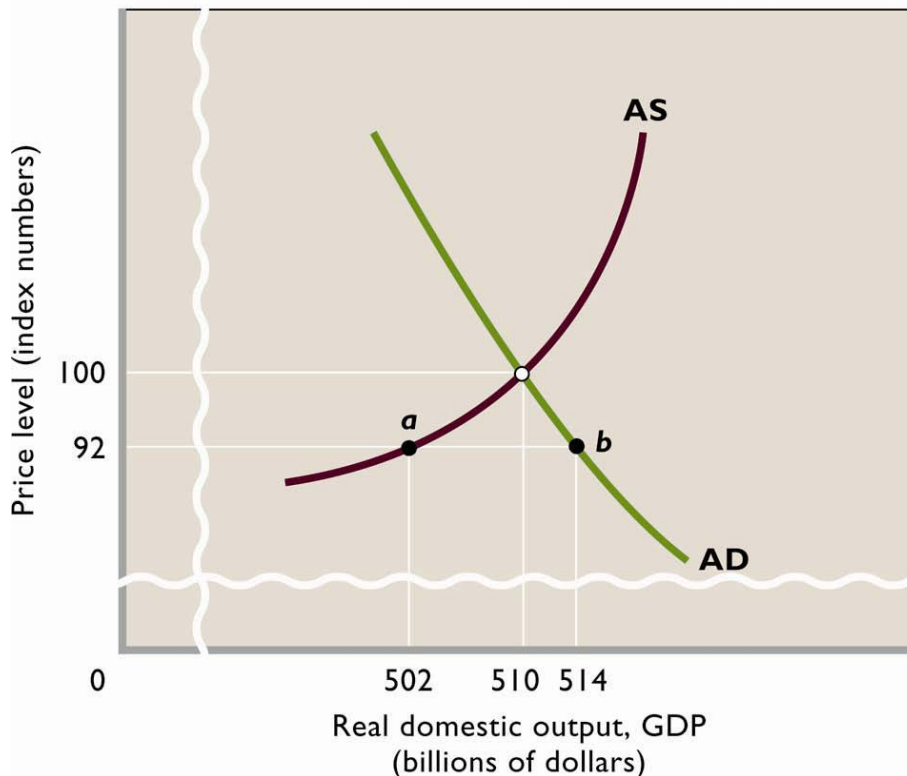
Name _____ Hour _____

Fiscal Policy (Page 208 – 213)

1. What is **Fiscal Policy** and why is it done?

2. What agency's advice within the federal bureaucracy often initiates fiscal policy?

3. In the first paragraph of the section, "Expansionary Fiscal Policy," explain in your own words the economic situation described in the first two paragraphs that call for **expansionary fiscal policy** (a quick couple of words will **not** receive credit).

4. When practicing **expansionary fiscal policy**, what are the governments 3 main options?
a.

b.

c.

5. From a balanced federal budget, what problem would these options all create?

6. However, what effect will this have on aggregate demand (AD)?

7. Explain how $5 billion in additional government spending will lead to a $20 billion increase in real GDP output.

(Note - because prices are sticky, they didn't fall when the recession hit, and now, since we are returning to the previous level of demand, they don't rise either. The price level remains the same througout, so the full effect of the multiplier is felt on GDP)

8. If tax cuts were used instead of government spending, would the tax cut have to be larger, smaller, or equal to the $5billion increase in government spending to get the same $20 billion increase in GDP?

Read this text for the next few questions: The reason that the tax cut must be larger than the government spending increase in order to get the same $20 billion increase in GDP is that government spending is part of the GDP formula (C + Ig + **G** + Xn). If G increases by $5 billion, GDP immediately increases by a full $5 billion and that entire amount is multiplied by the expenditures multiplier (1 / 1 - MPC). Tax cuts are not part of the GDP formula. Instead, tax cuts effect something that is part of the GDP formula, consumption, but not entirely. If Americans receive a $5 billion tax cut, it will not increase C by $5 billion because Americans will not consume (spend) the entire $5 billion. They will consume a percentage of it and save a percentage of it, and only the percentage that is consumed will increase GDP and be multiplied. We actually have a term for the

percentage of any marginal income, like a tax cut, that will be consumed. It is the MPC. If the MPC is .75, then Americans will consume 75% of their $5 billion dollar tax cut and save 25%. This 75% of $5 billion (which is $3.75 billion) immediately increases C and will then be multiplied by the expenditures multiplier. See these formulas and proofs:

With an MPC of .75,
A. Total increase in AD from an increase in C, Ig, G, or Xn =
                                    The initial change in spending x expenditures multiplier.

Ex: Government spending increases by $5billlion → total increase in AD = $5 billion(expenditures multiplier)
                                                                        = $5 billion (1 / 1 - MPC)
                                                                        = $5 billion (1 / 1 -.75)
                                                                        = $5 billion (1 / .25)
                                                                        = $5 billion (4)
                                                                        = $20 billion total increase in AD

B. Total increase in AD from a tax cut = The tax cut x the MPC x the expenditures multiplier
(note, in the formula, "The tax cut x the MPC' gives us the total increase in consumption that will result from the tax cut)

Ex: Taxes are lowered by $5 billion → total increase in AD = $5 billion x MPC x Expenditures Multiplier)
                                                    = $5 billion x .75 x (1 / 1 - MPC)
                                                    = $3.75 billion   x (1 / 1 - .75)
                                                    = $3.75 billion   x (1 / .25)
                                                    = $3.75 billion   x 4 =
                                                    = $15 billion total increase in AD

C. The last two terms in this last equation above are simplified and called "The Tax Cut Multiplier" since multiplying the tax cut by them will give us the same total increase in AD.

The Tax Cut Multiplier = MPC x Expenditures Multiplier = MPC x 1/1-MPC = **MPC / 1 - MPC**

Ex: Taxes are lowered by $5 billion → total increase in AD = Tax cut (Tax Cut Multiplier)
                                            = $5billion (MPC / 1 - MPC)
                                            = $5 billion (.75 / 1 - .75)
                                            = $5 billion (.75 / .25)
                                            = $5 billion (3)
                                            = $15 billion total increase in AD

If we wanted to shift AD by $20 with a tax cut, and were given an MPC of .75, we could calculate the necessary size of the tax cut as follows:

Total increase in AD = Tax cut (Tax Cut Multiplier)
        $20 billion   = Tax cut (MPC / 1 - MPC)
        $20 billion   = Tax cut (.75 / 1 - .75)
        $20 billion   = Tax cut (3)

        $20 billion   = Tax cut (3)
            3   3

        $6.67 billion   =   Tax cut

8a. Explain in your own words why a $5 billion increase in government spending causes a larger increase in AD than a $5 billion tax cut.

8b. What term do we have that tells us the percentage of a tax cut (or any increase in income) that would be spent and multiplied?

For all of the following questions, assume the MPC is .80.

8c. If government spending increased by $6, what would be the total increase in AD (show at least some of your math)?

8d. If taxes were cut by $6, what would be the total increase in AD (show at least some of your math)?

8e. If we wanted to cut tax to increase AD by $30 billion, how much would the tax cut have to be? (show at least some of your math)?

Continue →

9. In the first paragraph of the section, "Contractionary Fiscal Policy," explain in your own words the economic situation described in the first two paragraphs that call for **contractionary fiscal policy** (a few quick words will **not** receive credit).

10. When practicing **contractionary fiscal policy** to fight the inflation, what are the governments 3 main options?
a.

b.

c.

11. From a balanced federal budget, what situation would these options all create?

12. What effect will they have on AD?

13. To what extent can contractionary fiscal policy reverse demand-pull inflation?

14. As with expansionary fiscal policy, in order to decrease consumption by a final total of $20 billion, instead of raising taxes by $5 billion, how much would the government have to raise taxes by (This is also my example C above)?

15. Read the section, "Policy Options: G or T." Which mix of fiscal policy options do you prefer to battle **recession?** Write a brief justification of your answer in terms similar to those used in this section of the text, and feel free to go beyond the text too if you like.

Continue →

16. What is a "**Built-in Stabilizer**?"	17. Draw the graph of built-in stability, Figure 11.3
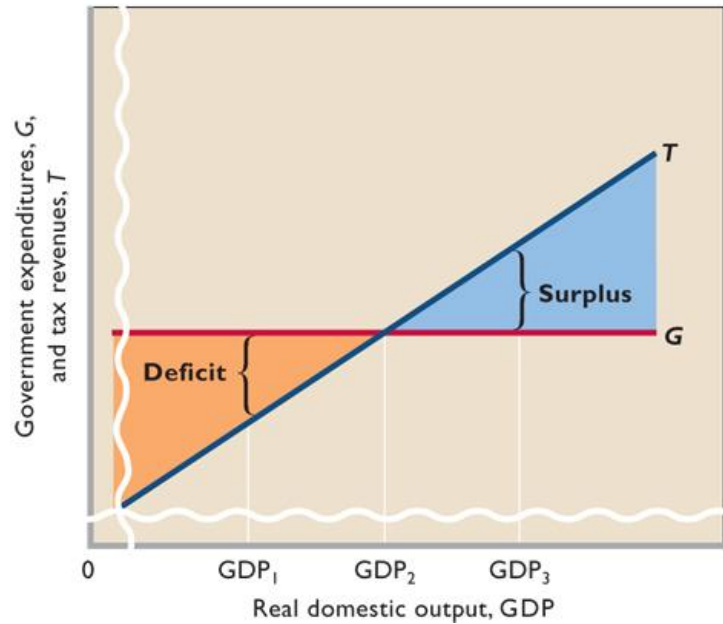
18. Skip ahead for a moment and define the following terms:

a.

b.

c.

(Example: A sales tax. Recall the APC / disposable income relationship. Poor people spend all their money, so it's all taxed. Not so with wealthy people.)

19. Of these three kinds of tax systems, which 2 will have an upward sloping tax line like the one from figure 11.3?

20. Note, the U.S. tax code is mostly progressive, so figure 11.3 reflects our tax structure. With that in mind, according to the graph and the text, what **automatically** happens to the amount of taxes the government takes in when GDP is low; that is, when there is a recession?

21. This would be an example of which kind of fiscal policy?
    A. Expansionary   B. Contractionary

22. Is this approach appropriate for fighting recession?

Continue →

23. Looking again at the text or the graph, what **automatically** happens to the amount of taxes that the government takes in when GDP is high and we may be having inflation problems?

24. This would be an example of which kind of fiscal policy?
    A. Expansionary   B. Contractionary

25. Is this approach appropriate for fighting inflation?

26. Why is it appropriate to call what we have just described an "**automatic**" stabilizer?

27. Look back to the business cycle graphic, figure 7.1, on page 127. What do you think has happened to the ups and downs in the business cycle since the implementation of these "automatic stabilizers?"
    A. The peaks have gone way up and the troughs have gone way down. In other words, the phases of the business cycle have become more extreme.

    B. The peaks and troughs remain closer to the center trend line. In other words, the phases of the business cycle have become less extreme.

The Tools of Fiscal Policy

Changes in federal taxes and federal government spending designed to affect the level of aggregate demand in the economy are called *fiscal policy.*

Aggregate demand is the total amount of spending on goods and services in the economy during a stated period of time. Aggregate demand consists of consumer spending, government spending, investment spending and net exports.

Aggregate supply consists of the total amount of goods and services available in the economy during a stated period of time.

During a recession, aggregate demand is usually too low to bring about full employment of resources. Government can increase aggregate demand by spending more, cutting taxes or doing both. These actions often result in budget deficits because the government spends more than it collects in taxes. Increasing government spending without increasing taxes or decreasing taxes without decreasing government expenditures should increase aggregate demand. Such an *expansionary fiscal policy* should increase employment, the price level or both.

If the level of aggregate demand is too high, creating inflationary pressure, government can reduce its spending, increase taxes or do both. These actions should result in a larger budget surplus or a smaller budget deficit than existed before. Such a *contractionary fiscal policy* should lower the level of aggregate demand, and the economy will experience less employment, a lower price level or both.

Name _____ Hour _____

Part A

Decide whether each of the following fiscal policies of the federal government is expansionary or contractionary. Write *expansionary* or *contractionary*, and explain the reasons for your choice.

1. The government cuts business and personal income taxes and increases its own spending.

2. The government increases the personal income tax, Social Security tax and corporate income tax. Government spending stays the same.

3. Government spending goes up while taxes remain the same.

4. The government reduces the wages of its employees while raising taxes on consumers and businesses. Other government spending remains the same.

Name _____ Hour _____

Part B
Effects of Fiscal Policy

Test your understanding of fiscal policy by completing the table in Figure 30.1. Your choices for each situation must be consistent — that is, you should choose either an expansionary or contractionary fiscal policy. (Fiscal policy cannot provide a solution to one of the situations.) Fill in the spaces as follows:

Column A: Objective for Aggregate Demand
    Draw an up arrow if you wish to increase aggregate demand.
    Draw a down arrow if you wish to decrease aggregate demand.

Column B: Action on Taxes
    Draw an up arrow if you wish to increase taxes.
    Draw a down arrow if you wish to decrease taxes.

Column C: Action on Government Spending
    Draw an up arrow if you wish to increase government spending.
    Draw a down arrow if you wish to decrease government spending.

Column D: Effect on Federal Budget
    Write *toward deficit* if your action will increase the deficit (or reduce the surplus).
    Write *toward surplus* if your action will reduce the deficit (or increase the surplus).

Column E: Effect on the National Debt
    Draw an up arrow if you think the national debt will increase.
    Draw a down arrow if you think the national debt will decrease.

✳ Figure 30.1
Effects of Fiscal Policy

	(A) Objective for Aggregate Demand	(B) Action on Taxes	(C) Action on Government Spending	(D) Effect on Federal Budget	(E) Effect on the National Debt
1. National unemployment rate rises to 12 percent.					
2. Inflation is strong at a rate of 14 percent per year.					
3. Surveys show consumers are losing confidence in the economy, retail sales are weak and business inventories are increasing rapidly.					
4. Business sales and investment are expanding rapidly, and economists think strong inflation lies ahead.					
5. Inflation persists while unemployment stays high.					

Discretionary and Automatic Fiscal Policy

One of the goals of economic policy is to stabilize the economy. This means trying to keep employment high and the price level stable. To accomplish this, the amount of aggregate demand in the economy must be near the full-employment level of output. If aggregate demand is too low, there will be unemployment. If aggregate demand is too high, there will be inflation.

If aggregate demand is too low, government may be able to stimulate spending in the economy by increasing its spending or by cutting taxes. These policies are examples of *expansionary fiscal policy*. If government wants to slow down aggregate demand, it would pursue a *contractionary fiscal policy*. To do this, it could cut government spending or raise taxes.

If government has to pass a law or take some other specific action to change its tax and/or spending policies, then government is stabilizing the economy through *discretionary policy*. If the effect happens by itself as the economic situation changes, then it is known as an *automatic stabilizer*. An example of an automatic stabilizer is unemployment compensation: If the economy goes into a recession and people are laid off, they may be eligible to receive unemployment compensation. This payment helps them buy necessities and helps keep aggregate demand from falling as much as it might otherwise. The payments help stabilize the economy but occur without any additional legislation.

Name _____ Hour _____

Listed below are several economic scenarios. For each scenario, indicate whether it represents an automatic (A) or discretionary (D) stabilizer and whether it is an example of expansionary (E) or contractionary (C) fiscal policy. A sample has been completed for you.

Economic Scenarios	Automatic (A) or Discretionary (D)	Expansionary (E) or Contractionary (C)
Sample: Recession raises amount of unemployment compensation.	A	E
1. The government cuts personal income-tax rates.		
2. The government eliminates favorable tax treatment on long-term capital gains.		
3. Incomes rise; as a result, people pay a larger fraction of their income in taxes.		
4. As a result of a recession, more families qualify for food stamps and welfare benefits.		
5. The government eliminates the deductibility of interest expense for tax purposes.		
6. The government launches a major new space program to explore Mars.		
7. The government raises Social Security taxes.		
8. Corporate profits increase; as a result, government collects more corporate income taxes.		
9. The government raises corporate income tax rates.		
10. The government gives all its employees a large pay raise.		

Name _____ Hour _____

Monetary and Fiscal Policy Review - Page 1

Directions: For each action taken on the right, enter the appropriate information in each box.

(A) Who does it? C = Congress F = Fed B = Both	(B) What policy is it? F = Fiscal M = Monetary B = Both	(C) What kind is it? E = Expansionary C = Contractionary	(D) Draw up or down arrows to indicate the influence on each component of AD. Leave it blank if it is unaffected.				(E)What effect would this have on AD (Draw arrows left or right)?	Actions taken:
			C	Ig	G	Xn		
								1. The Reserve Ratio is increased to 25%
								2. The government cuts personal taxes.
								3. Government infrastructure spending (on things like bridges and highways) doubles
								4. In open market operations, several government securities are sold to commercial banks and to the public
								5. Personal taxes go up. Government spending decreases
								6. The Reserve Ratio is lowered, Government spending increases
								7. The Discount rate is lowered.
								8. The Reserve Ratio is raised and so are personal and corporate taxes.
								9. In open market operations, several U.S. treasury bills and government bonds are purchased from commercial banks, the reserve ratio is lowered, and the government provides several grants to local communities for police and firefighting services to be improved.

Name _____ Hour _____

Monetary and Fiscal Policy Review - Page 2

Directions: Enter the arrow or phrase indicated at the top of each column to show what fiscal and monetary policies should be undertaken assuming an NRU of 5% and a maximum acceptable inflation rate of 3%. If no corrective policy action is required, draw a vertical line through the entire row. If there is stagflation, assume that the inflation aspect of it is the most dangerous and needs corrective action.

		Fiscal Policy by Congress		Monetary Policy by the Federal Reserve		
	(A) Objective for Aggregate Demand (arrow left or right)	(B) Action on Taxes (arrow up or down)	(C) Action on Government Spending (arrow up or down)	(D) Action on the Reserve Ratio (arrow up or down)	(E) Action on the Discount Rate (arrow up or down)	(F) Open Market Operations. Write "Buy Sec" for buy securities or "Sell Sec." for sell securities.
1. Unemployment reaches 9% (NRU = 5%)						
2. Economists are sure that a recent downturn in consumer spending will lead to recession.						
3. The CPI goes from 200 to 214						
4. Inflation is at 2%						
5. The % change in CPI is 7%. Cyclical unemployment = 3%						
6. The Price level goes from 150 to 160						
7. GDP is shrinking, Inflation is at 7 %, Unemployment is at 8%						

Name _____ Hour _____

Loanable Funds Theory (page 529 - 535)

Start on page 529, "Interest"

1. What is **Interest**?

2. Why is interest stated as a percentage rather than a dollar amount?

3. Even though money is not capital, why does it make sense to refer to borrowed money as "**money capital**?"

4. Rather than explaining interest rates in terms of the supply and demand for money, how does **Loanable Funds Theory** explain interest rates?

5. In the box to the right, draw and fully label figure 27.2, the market for loanable funds. 6. In the simplified loanable funds theory, who are the following? a. The sole suppliers of loanable funds? b. The sole demanders of loanable funds? c. For now, We assume that suppliers getting the funds to the demanders does not involve who or what? 7. Why does the supply curve for loanable funds slope upwards from left to right?	**5. The Loanable Funds Graph**

8. As we have already learned from our study of investment (Ig), and as is stated here, businesses will borrow money to invest in capital if *what* is true regarding the interest rate and the expected rate of return?

9. Why is the demand curve for loanable funds downward sloping from left to right?

10. In reality, it is banks that actually lend businesses our money, not us. How do banks entice us to provide them with our money which they then loan to businesses?

11. Since banks are paying us interest for our money and then charging businesses interest for using our money, how is it that banks profit by doing this?

12. Even though they are different interest rates, they are both determined by what?

13. What will cause the supply curve for laonable funds to increase or decrease (shift right or left)?

14. What will cause the demand curve for laonable funds to increase or decrease (shift right or left. **Note**: For specific examples of these things, see your Note Packet - Interest Rates & Investment Demand)?

15. In actuality, who are other demanders and suppliers of loanable funds?
a. Demander: b. Demander: c. Supplier:

16. How else can banks increase the supply of loanable funds?

17. At this point, look back at figure 27.2. What would happen to the interest rate (a term which refers to all interest rates in general) under the following circumstances?

a. If the supply of Loanable Funds increases (shifts to the right), the interest rate would INCREASE / DECREASE	c. If the supply of Loanable Funds decreases the interest rate would INCREASE / DECREASE
c. If the demand for Loanable Funds increases, the interest rate would INCREASE / DECREASE?	d. If the demand for Loanable Funds decreases, the interest rate would INCREASE / DECREASE?

18. Because there is no real "interest rate" but different ones, we must be aware of what makes some of them higher than others? Explain how each of the following relates to how high or low the interest rate will be for the borrower.
a. Risk   Loans to risky borrowers (with bad credit history who might not pay it back) will have a
                HIGHER / LOWER interest rate than loans to low risk borrowers.

b. Maturity   Loans that will be paid back or "mature" over a long period of time will have a
                HIGHER / LOWER interests rate than short term loans.

c. Loan size   Large loans will have a HIGHER / LOWER interest rate than small loans

d. Taxability   Loans that earn interest income for the lender that is not taxed will have HIGHER / LOWER
                interest rates than loans that earn interest income that is taxed - ex. Local government bonds.

19. Economists simplify all of these various interest rates by simply talking about "the" interest rate, as if there was just one. Name and explain the term that these economists have in mind.

20. If the interaction of the supply and demand for loanable funds results in a high equilibrium interest rate, MORE / LESS investment will occur	21. If the interaction of the supply and demand for loanable funds results in a low equilibrium interest rate, MORE / LESS investment will occur

Continue →

Read this text for the following questions: Talking about the effect that savings and interest rates have on investment (Ig) leads to the topic of **'financial capital flows'** or, as it is usually simply called, **'capital flows**,' and a new way to calculate Ig. If you are interested in seeing all of the math involved in the following formulas, I encourage you find a very helpful video online by searching for: "National savings and investment video Khan Academy" and "Net exports and capital outflows Khan Academy." Here, I will give you a much more concise (and somewhat incomplete) version. Recall that businesses borrow the money needed to invest. Obviously, they cannot borrow money that is being spent. The only money that is available for businesses to borrow is money that is not being spent; that is, money that is saved. Therefore, if S = savings and Ig = Investment, then we can say that:

$$Ig = S$$

If we were to pretend that the United States was a closed economy, meaning that did not interact financially with other countries in any way, then all of the savings available to businesses would be money saved by our own citizens and our own government. These are called **'private savings'** and **'public savings**' respectively. Private Savings + Public Savings is called **'National Savings.'** So in the formula, Ig = S, the S is not actually 'Savings' simply but rather 'National Savings,' the savings from this nation's citizens and government. Ig = S is the investment formula in a closed economy where S = National Savings.

In actuality, the United States in an open economy that interacts financially with other nations. That being the case, citizens of other countries might put their money in a US bank to earn interest or in some other interest earning account in the United States. This would be an 'inflow' of savings to our country from another country. Since this new source of savings could be used by businesses to invest in capital, we refer to this inflow of savings from another country as a **'financial capital inflow'** or more commonly simply as a **'capital inflow.'** (To be sure, money is not capital. Factories, tractors, tools, and the like are capital; however, since this money is going to be used to invest in capital, we call this money 'financial capital,' 'money capital,' or simply 'capital.'). If this were the end of the story, the formula for Ig in an open economy that trades with other nations would be written as:

$$Ig = S + \text{capital inflows.}$$

However, while citizens of other nations may put their money in US banks which creates capital inflows, US citizens may also put their money in a foreign banks which creates **capital outflows** since this money is no longer available for US businesses to borrow. So the formula for Ig in an open economy would be:

$$Ig = S + \text{capital inflows - capital outflows.}$$

Capital inflows - capital outflows is referred to as **Net Capital Inflow**. So the final formula for Ig in an open economy is: $Ig = S + \text{Net Capital Inflow.}$

One of the main determinants of capital flows is interest rates. If interest rates are high in another country, U.S. citizens will deposit their money in these foreign banks to earn that high interest, creating a capital outflow, decreasing Ig here but increasing it there. If interest rates are high here in the U.S., foreign citizens will deposit their money in U.S. banks, creating a capital inflow, increasing Ig here but decreasing it there.

22. Why does investment equal savings?

23. Write the formula for Ig in a closed economy:

24. In a closed economy, savings comes from only two sources. What are they (explain them rather than writing 'public and private savings').

25. Using the 'econ terms' for your answers to the last question, complete the formula:
        investment in a closed economy is:

        Ig = _____ (where S = National Savings = _____+ _____).

26. In an open economy that interacts financially with other nations, why would foreign citizens deposit money in a U.S. bank?

27. Since this money is now available for U.S. companies to borrow and invest, what do we call this foreign money in our banks?

28. Why might U.S. citizens deposit money in a foreign bank?

29. Since this money is no longer available for U.S. companies to borrow and invest, what do we call this U.S. money deposited in foreign banks?

30. What do we call capital inflows - capital outflows?

Complete the formula:
        Investment in an open economy is:

Ig = __ + Net Capital Inflow (Where Net Capital Inflow = _____ - _____.)

31. The main reason that citizens deposit money where they do is what?

32. In a closed economy, the government saves $100 and citizens save $200. What is Ig?

33. In a closed economy, the government is in debt $50 (so -$50) and citizens save $200. What is Ig?

34. In an open economy, the government saves $50, the citizens save $200, foreigners deposit $250 in U.S. banks and U.S. Citizens deposit $75 in foreign banks. What is Ig?

Lecture Notes - Crowding Out - Page 1

**Lecture Notes - Crowding Out - Page 2**

Name _____ Name _____

Crowding-Out: A Graphical Representation

Monetary policy and fiscal policy do not exist in separate airtight compartments. Monetary policy and fiscal policy can reinforce or accommodate each other, or they can work at cross-purposes. This activity assumes no changes in the foreign exchange rate, imports or exports.

For example, an expansionary fiscal policy will increase aggregate demand. The expansionary fiscal policy should also increase the demand for money. If the Fed does not increase the money supply, interest rates will rise. Because the government is borrowing money to finance its expansionary fiscal policy, consumers and businesses will be crowded-out of the financial markets. This could lower consumer and investment spending and slow down the economic expansion. On the other hand, if the Fed increases the money supply, interest rates should not rise as much. Of course, increasing the money supply will increase the price level further.

Part A
Using Aggregate Demand and Aggregate Supply Analysis

✳ Figure 44.1
Crowding-Out Using Aggregate Demand and Aggregate Supply Analysis
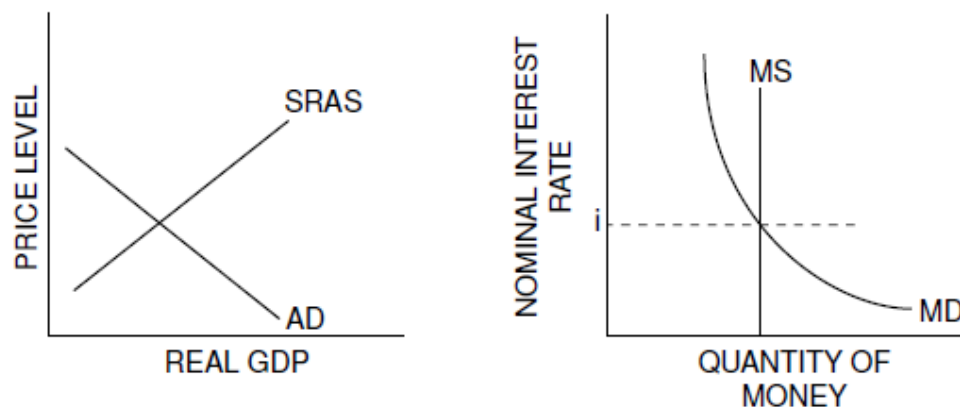
1. Assume fiscal policy is expansionary and monetary policy keeps the stock of money constant at MS. Shift one curve in each graph to illustrate the effect of the fiscal policy.

   (A) Which curve did you shift in the short-run aggregate demand and aggregate supply graph? What happens as a result of this new curve?

   (B) In the money market graph, which curve did you shift to demonstrate the effect of the fiscal policy? What happens as a result of this shift?

(C) Given the change in interest rates, what happens in the short-run aggregate supply and aggregate demand graph?

(D) How could a monetary policy action prevent the changes in interest rates and output you identified in (B) and (C)? Shift a curve in the money market graph, and explain how this shift would reduce crowding-out.

Part B
Using the Loanable Funds Market

The loanable funds market provides another approach to looking at the effects of increases in the budget deficit. The *demand* for funds in the loanable funds market comes from the private sector (business investment and consumer borrowing), the government sector (budget deficits) and the foreign sector. The *supply* of funds in the loanable funds market comes from private savings (businesses and households), the government sector (budget surpluses), the Federal Reserve (money supply) and the foreign sector.

✳ Figure 44.2
Loanable Funds Market
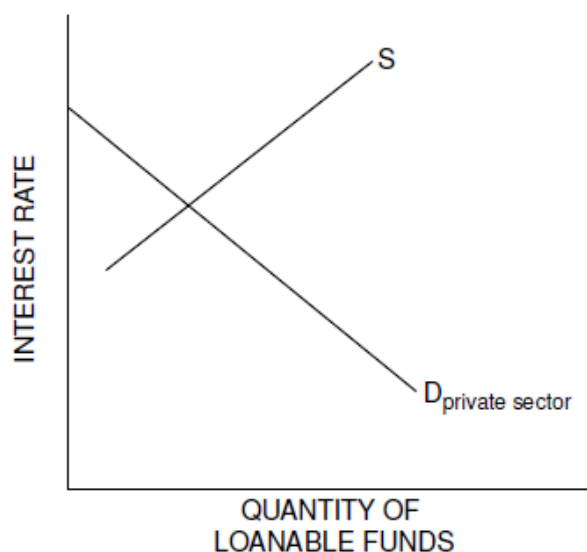
2. Shift one of the curves on Figure 44.2 to indicate what occurs in the loanable funds market if government spending increases without any increases in tax revenue or the money supply.

(A) What happens to the interest rate as a result of this expansionary fiscal policy? Explain.

(B) Indicate on the graph the new quantity of private demand for loanable funds.

(C) An accommodating monetary policy could prevent the effects you described in (A) and (B). Shift a curve in the diagram to show how the accommodating monetary policy would counteract the effects of crowding-out. Explain what would happen to interest rates and the level of private demand for loanable funds as a result of this new curve.

Part C
Applications

3. Indicate whether you agree (A), disagree (D) or are uncertain (U) about the truth of the following statement and explain your reasoning. "Exhaustion of excess bank reserves inevitably puts a ceiling on every business boom because without money the boom cannot continue."

Answer the questions that follow each of the scenarios below.

4. The Federal Reserve Open Market Committee wishes to accommodate or reinforce a contractionary fiscal policy.

   (A) Would the Fed buy bonds, sell bonds or neither?

   (B) What effect would this policy have on bond prices and interest rates?

   (C) What effect would this policy have on bank reserves and the money supply?

   (D) What effect would this policy have on the quantity of loanable funds demanded by the private sector?

   (E) What effect would the change in interest rates you identified in (B) have on aggregate demand?

5. The Federal Reserve Open Market Committee wishes to accommodate or reinforce an expansionary fiscal policy.

   (A) Would the Fed buy bonds, sell bonds or neither?

   (B) What effect would this policy have on bond prices and interest rates?

   (C) What effect would this policy have on bank reserves and the money supply?

   (D) What effect would this policy have on the quantity of loanable funds demanded by the private sector?

   (E) What effect would the change in interest rates you identified in (B) have on aggregate demand?

Name _____ Hour _____
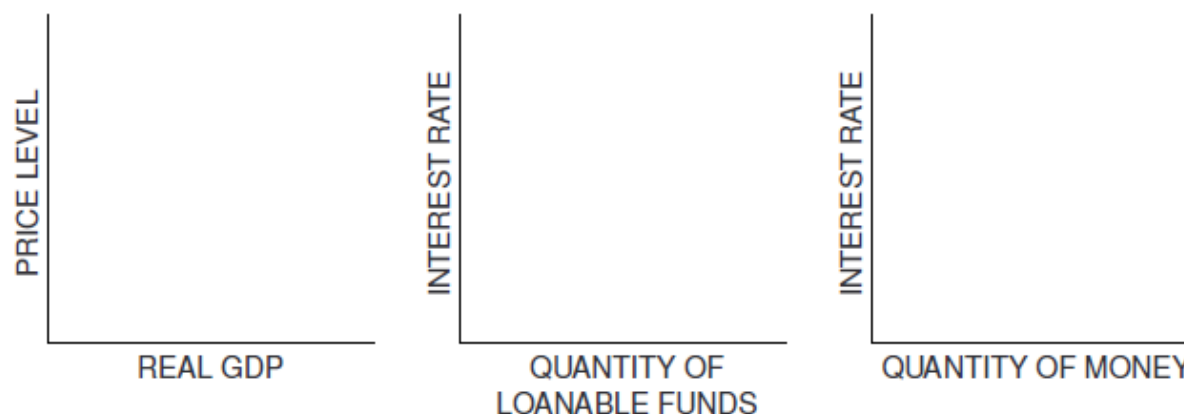
Graphing Monetary and Fiscal Policy Interactions

Illustrate the short-run effects for each monetary and fiscal policy combination using aggregate demand and supply curves, the money market and the loanable funds market. Once again, assume that there are no changes in the foreign sector. Circle the appropriate symbols (↑ for increase, ↓ for decrease, and ? for uncertain), and explain the effect of the policies on real GDP, the price level, unemployment, interest rates and investment.

1. The unemployment rate is 10 percent, and the CPI is increasing at a 2 percent rate. The federal government cuts personal income taxes and increases its spending. The Fed buys bonds on the open market.

✳ Figure 45.1
Expansionary Monetary and Fiscal Policy

| | PRICE LEVEL / REAL GDP | INTEREST RATE / QUANTITY OF LOANABLE FUNDS | INTEREST RATE / QUANTITY OF MONEY |

(A) Real GDP   ↑   ↓   ?   Explain.

(B) The price level   ↑   ↓   ?   Explain.

(C) Unemployment   ↑   ↓   ?   Explain.
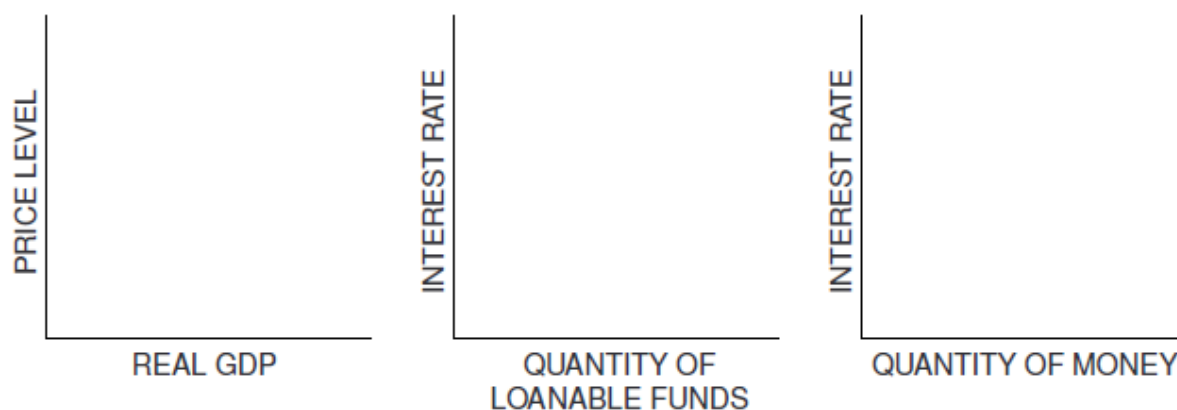
(D) Interest rates   ↑   ↓   ?   Explain.

(E) Investment   ↑   ↓   ?   Explain.

2. The unemployment rate is 6 percent, and the CPI is increasing at a 9 percent rate. The federal government raises personal income taxes and cuts spending. The Federal Reserve sells bonds on the open market.

✳ Figure 45.2
Contractionary Monetary and Fiscal Policy

(A) Real GDP   ↑   ↓   ?   Explain.

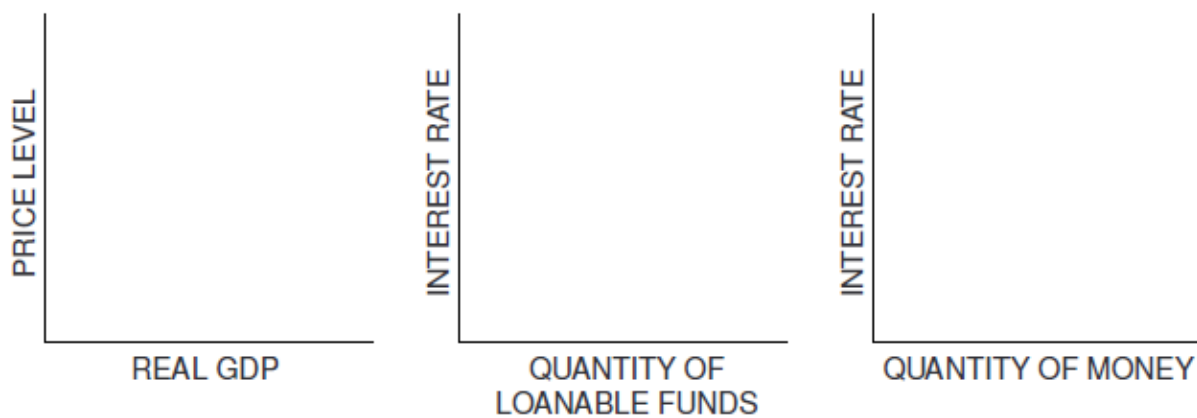(B) The price level   ↑   ↓   ?   Explain.

(C) Unemployment ↑ ↓ ? Explain.

(D) Interest rates ↑ ↓ ? Explain..

(E) Investment ↑ ↓ ? Explain.

3. The unemployment rate is 6 percent, and the CPI is increasing at a 5 percent rate. The federal government cuts personal-income taxes and maintains current spending. The Fed sells bonds on the open market.

✳ Figure 45.3
Contractionary Monetary Policy and Expansionary Fiscal Policy

(A) Real GDP ↑ ↓ ? Explain.

(B) The price level   ↑   ↓   ?   Explain.

(C) Unemployment   ↑   ↓   ?   Explain.

(D) Interest rates   ↑   ↓   ?   Explain.

(E) Investment   ↑   ↓   ?   Explain.