Unit 3 - MACROECONOMIC POLICY

Chapters 10 and 13 - Fiscal Policy

- Reading Assignments:
    - ALL of chapter 10
    - ALL of chapter 13
    - PLUS pp. 367-368 "Taxation and Aggregate Supply"
- Study Guide
    - Chapter 10:
        - Multiple Choice: ALL
        - Problems: # 1, 4, 5
    - Chapter 13:
        - Multiple Choice: # 1-5, 10, 11-25
        - Problems: # 4, 5
- Worked Problems 10.1 and 10.2 at http://www.mcconnell18e.com
- Web Quizzes at http://www.mcconnell18e.com
    - Chapter 10: ALL
    - Chapter 13: # 1, 2, 4-10
- Key Questions
    - Chapter 8: # 1a and 4
    - Chapter 11: # 1, 2, 4, 5, and 6
- End-of-Chapter Key Questions: # 10-5a, 10-9, 13-2, 13-3, 13-8, 13-10, 13-13
  [the answers to the key questions can be found on our Blackboard site]

Chapters 14 and 15 - Money and How Banks Create It

- Reading Assignments:
    - ALL of Chapter 14 and pp. 308-310 from chapter 16
    - ALL of Chapter 15
- Study Guide
    - Chapter 14
        - Multiple Choice: # 1-5, 7, 9, 11, 13, 15-23
    - Chapter 15
        - Multiple Choice: # 1, 3-25
        - Problems: # 1-4
- Worked Problems 15.1 and 15.2 at http://www.mcconnell18e.com
- Web Quizzes at http://www.mcconnell18e.com
    - Chapter 14: 1-4, 6-8, 10
    - Chapter 15: ALL
- End-of-Chapter Key Questions: # 14-4, 14-8, 15-2, 15-4, 15-8, 15-13
  [the answers to the key questions can be found on our Blackboard site]

Chapter 16 - Monetary Policy

- Reading Assignment: ALL of chapter 16
- Study Guide
    - Multiple Choice: # 1, 3, 4, 7, 8, 14 (tricky), 15-30
    - Problems: # 3, 4, 5 (the graph is slightly off).
- Worked Problem 16.3 at http://www.mcconnell18e.com
- Web Quiz chapter 16 at http://www.mcconnell18e.com: # 2, 4-9
- End-of-Chapter Key Questions: # 16-1, 16-2, 16-5
  [the answers to the key questions can be found on our Blackboard site]

Consumption and Saving Functions

Y	C	S	APC	MPC	APS	MPS
0	40	- 40	--	--	--	--
100	120	- 20				
200	200	0				
300	280					
400	360					
500	440					
600	520					
700	600					

Consumption & Investment

EXPENDITURE – BILLIONS

real GDP (billions)

LEAKAGES / INJECTIONS

real GDP (billions)
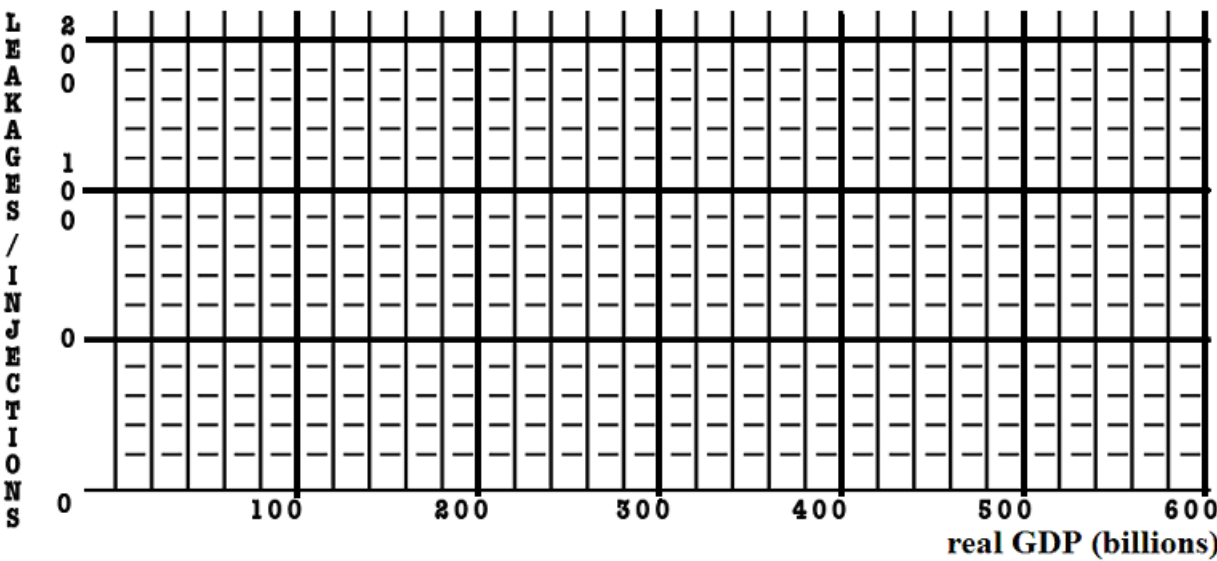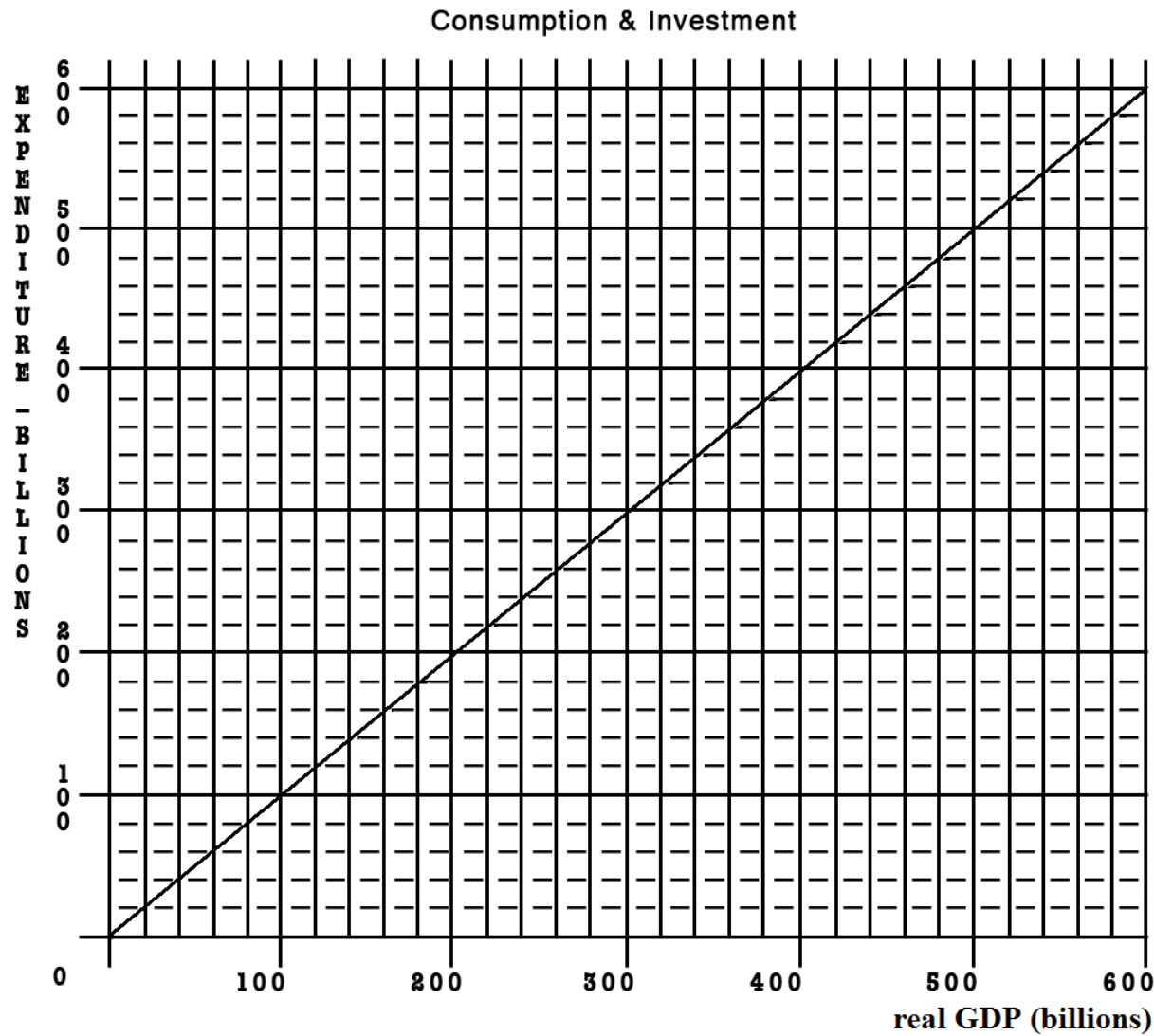
Given the graphs below, calculate the change in government spending that is needed for this economy to achieve full employment.
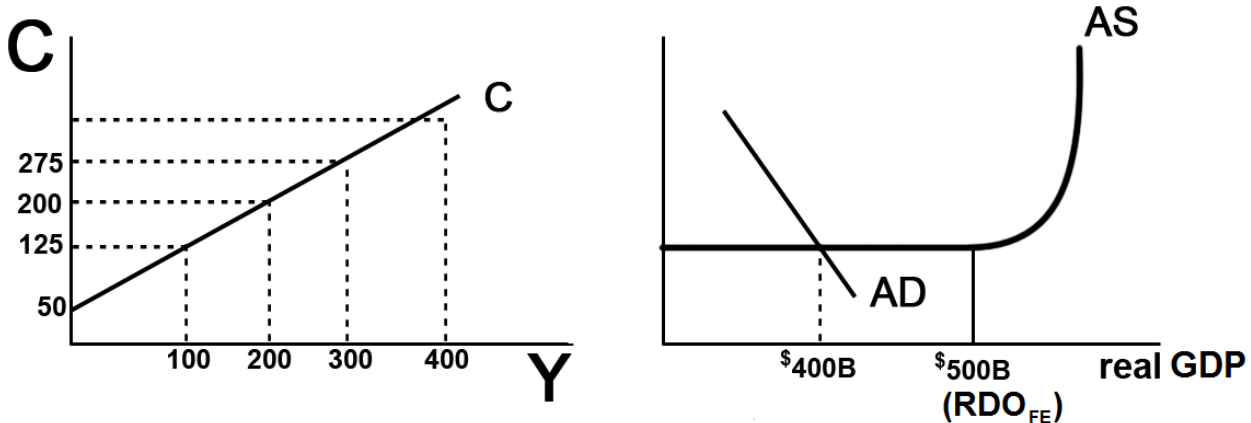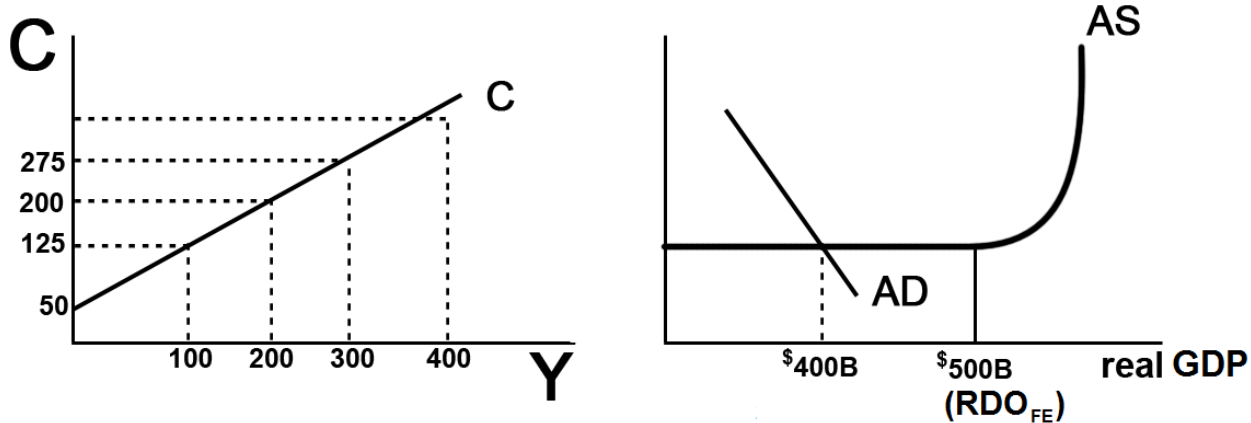

1. MPC = _____

2. MPS = _____

3. initial GDP = _____ full employment GDP = _____

4. multiplier = _____

5. What change in government spending needed to achieve full employment?

6. What happens to the size of the multiplier with the addition of Taxes and Imports?

7. What would happen to your answer in #5 if we included Taxes and Imports?

8. Notice that as this economy approaches full employment, there is no inflation. What happens to the size of the multiplier if there is inflation?

4

C graph: y-axis labeled C with values 50, 125, 200, 275. x-axis labeled Y with values 100, 200, 300, 400. Line labeled C.

Second graph: AS curve, AD curve. x-axis real GDP with $400B, $500B (RDO_FE).

9. What would happen to your answer in #5 if there was some inflation?

10. What is the lump-sum tax multiplier? _____

11. What change in taxes is needed to achieve full employment? _____

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If the MPC = .6 and government spending decreases by $100 B, what happens to equilibrium GDP?

The Philadelphia Inquirer, November 6, 1998

Plentiful gains seen from GOP

The publicity for the city may be priceless. The visitors' spending could reach $300 million.

By Howard Goodman
INQUIRER STAFF WRITER

When the elephants thunder into Philadelphia in 2000, the vibrations are expected to shake an incredibly bountiful money tree, showering dollars all over the region.

The economic impact of the Republican National Convention will almost certainly exceed $125 million in direct spending on hotel rooms, meals and the like, **along with at least $175 million in spinoff benefits** (emphasis added), David L. Cohen said yesterday. Cohen, Mayor Rendell's former chief of staff, is cochairman of Philadelphia 2000, the committee formed to woo a political convention.

The estimate is based on a Federal Reserve Board study of the economic blessings felt in Chicago from the 1996 Democratic convention, with a little extra figured in for four years' worth of inflation, Cohen said.

"There is no convention you can host that has a greater economic impact than a national political convention," he said. "Most people agree the only thing you can host that has a greater economic impact is the Olympics."

. . . . .

In San Diego, where the Republicans last met, business leaders still bask in the 1996 convention's glow. "We look at the convention as a weeklong television commercial for your city as a destination," Salvatore Giametta, a spokesman for the San Diego Convention and Visitors Bureau, said in an interview this summer.

. . . . .

According to the Greater San Diego Area Chamber of Commerce, the four-day convention attracted 30,000 visitors who spent $26 million on hotel rooms. But there has been no follow-up study to show the convention's broader effect on the San Diego economy.

Despite the lack of data, San Diego "absolutely" would host a convention again, Giametta said. "We think it was good for the tourism industry without a doubt."

Brian Ford, an accountant for Philadelphia 2000, said that insisting on a study to prove that Philadelphia will benefit mightily from the GOP meeting "is like saying you need a study to show that a car works."

. . . . .

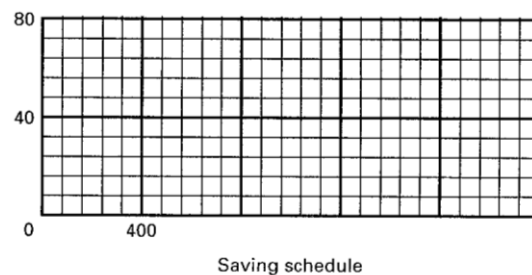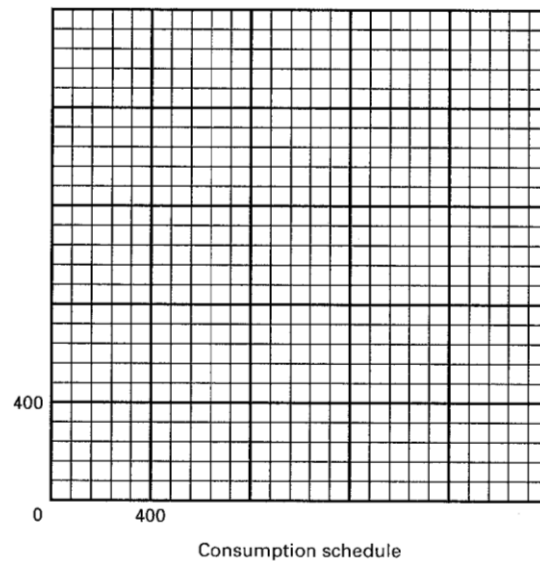**Chapter 10 and 13 REVIEW:**

MULTIPLIERS

MULTIPLIER	PAGE	LARGER OR SMALLER THAN THE SIMPLE MULTIPLIER? - WHY?
SIMPLE	pp. 200-203 "The Multiplier Effect"	multiplier = 1 / mps
Complex multiplier	pp. 203-205 "How Large is the Actual Multiplier Effect?"	smaller because there are more leakages: (1) saving, (2) spending on imports, and (3) taxes
Multiplier w/ changes in the price level	pp. 255-256 "Increased Government Spending"	smaller
G spending multiplier	p. 255 "Increased Government Spending" p. 257 "Decreased Government Spending"	same as simple
Tax multiplier	p. 256 "Tax Reductions" p. 258 "Increased Taxes"	one less than the simple multiplier, but negative tax multiplier =MPC / MPS
Bal. Budget multiplier	p. 256, 258 "Combined Gov/t Spending . . . "	always equals 1, WHY?
Multiplier w/ crowding out (expansionary FP only)	pp. 265, 269 "Crowding-Out Effect"	smaller
Multiplier with supply-side effects	pp. 265-266 "Current Thinking on Fiscal Policy"	larger

ECO 212 - Chapters 10 and 13 - Fiscal Policy
REVIEW EXERCISES

1. Complete the accompanying table.

Level of output and income (GDP = DI)	Consumption	Saving	APC	APS	MPC	MPS
$480	$_____	−$8	_____	_____	_____	_____
520	_____	0	_____	_____	_____	_____
560	_____	8	_____	_____	_____	_____
600	_____	16	_____	_____	_____	_____
640	_____	24	_____	_____	_____	_____
680	_____	32	_____	_____	_____	_____
720	_____	40	_____	_____	_____	_____
760	_____	48	_____	_____	_____	_____
800	_____	56	_____	_____	_____	_____

2. Using the data above, show the consumption and saving schedules graphically.

Consumption schedule

Saving schedule

Total Change in Money Supply = Initial excess reserves x Money Multiplier

- **Total Reserves = Cash in vault + Deposits at Fed**
- **Required Reserves = RR x Liabilities**
- **Excess Reserves = Total Reserves - Required Reserves**
- **Money Multiplier = 1 / RR**

How Banks Create Money

Major Point: An initial increase in funds available to the banking industry results in a MULTIPLE increase in the money supply.

Three Step Process per Round:

1. **An increase in demand deposits or other liabilities of a bank increases the bank's reserves.**
2. **Bank can make loans equal to its excess reserves. Loans made by increasing demand deposits.**
3. **The loan check is spent, deposited in a different bank, and CLEARS. First bank now has no excess reserves, but second does and can therefore make a loan.**

Given:

Required Reserve Ratio = 20%

FNB = First National Bank
SNB = Second National Bank
TNB = Third National Bank

ER = excess reserves

All banks initially have no excess reserves

Banks make loans equal to their excess reserves

$10 cash is deposited in a checking (DD) account at FNB

Show:

The CHANGES in the balance sheets of each bank as a result of this $10 cash deposit and the increased loan making ability of the banks.

FORMULAS

Total Change in Money Supply = Initial excess reserves x Money Multiplier

- o **Total Reserves = Cash in vault + Deposits at Fed**
- o **Required Reserves = RR x Liabilities**
- o **Excess Reserves = Total Reserves - Required Reserves**
- o **Money Multiplier = 1 / RR**

Round One

Step 1: $10 deposited in FNB

First National Bank

ASSETS	LIABILITIES
Reserves _____	Demand Dep. _____
Required _____	
Excess _____	

Step 2: FNB makes loan equal to its excess reserves

First National Bank

ASSETS	LIABILITIES
Reserves __10__	Demand Dep. __10__
	Demand Dep. _____
Required _____	
Excess _____	
Loan _____	

Step 3: Loan is spent, deposited in SNB, and the check clears

First National Bank

ASSETS	LIABILITIES
Reserves _____	Demand Dep. __10__
	Demand Dep. _____
Required _____	
Excess _____	
Loan __8__	

Round Two

Step 1: Check from round one deposited in SNB

Second National Bank

ASSETS	LIABILITIES
Reserves _____	Demand Dep. _____
Required _____	
Excess _____	

Step 2: SNB makes loan equal to its excess reserves

Second National Bank

ASSETS	LIABILITIES
Reserves ___8___	Demand Dep. ___8___
	Demand Dep. _____
Required _____	
Excess _____	
Loan _____	

Step 3: Loan is spent, deposited in TNB, and the check clears

Second National Bank

ASSETS	LIABILITIES
Reserves _____	Demand Dep. ___8___
	Demand Dep. _____
Required _____	
Excess _____	
Loan ___6.40___	

Round Three

Step 1: Check from round two deposited in TNB

Third National Bank

ASSETS	LIABILITIES
Reserves _____	Demand Dep. _____
Required _____	
Excess _____	

Money Supply Changes:

How much money was created in round one? _____

How much money was created in round two? _____

How much money can be created in round three? _____

Deposit Expansion Multiplier = 1 / Required Reserve Ratio
(also called Money multiplier)

Money Multiplier = total increase in money supply / initial excess reserves

What is the money multiplier? _____

What is the maximum total increase in the money supply that can occur as a result of the initial $10 cash deposit? _____

What are the limitations on this money creation process?

_____

_____

_____

MONEY CREATION -- REVIEW

1. Why are financial institutions required to keep reserves?

2. Explain what is meant by fractional reserve banking.

3. Answer the next question based on the following consolidated balance sheet for the commercial banking system. Assume the required reserve ratio is 30 percent. All figures are in millions of dollars.

ASSETS		LIABILITIES	
Reserves	$200	Deposits	$600
Securities	500	Capital Stock	700
Loans	100		
Property	500		

(a) What is the amount of excess reserves in this commercial banking system?

(b) What is the maximum amount that the money supply can be expanded?

(c) If the reserve ratio fell to 25 percent, what is now the maximum amount that the money supply can be expanded?

4. Answer the next question based on the following consolidated balance sheet for the commercial banking system. Assume the required reserve ratio is 20 percent. All figures are in billions of dollars.

ASSETS		LIABILITIES	
Reserves	$60	Deposits	$200
Securities	140	Capital Stock	500
Loans	100		
Property	400		

(a) What is the amount of excess reserves in this commercial banking system?

(b) What is the maximum amount that the money supply can be expanded?

(c) If the reserve ratio fell to 10 percent, what is now the maximum amount that the money supply can be expanded?

Formulas

Total Change in Money Supply = Initial excess reserves x Money Multiplier

- **Total Reserves = Cash in vault + Deposits at Fed**
- **Required Reserves = RR x Liabilities**
- **Excess Reserves = Total Reserves - Required Reserves**
- **Money Multiplier = 1 / RR**

Balance Sheet of Banks

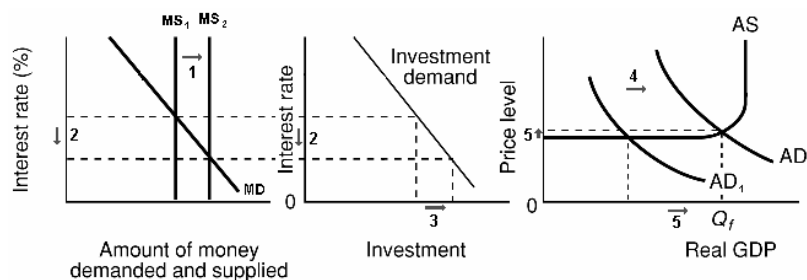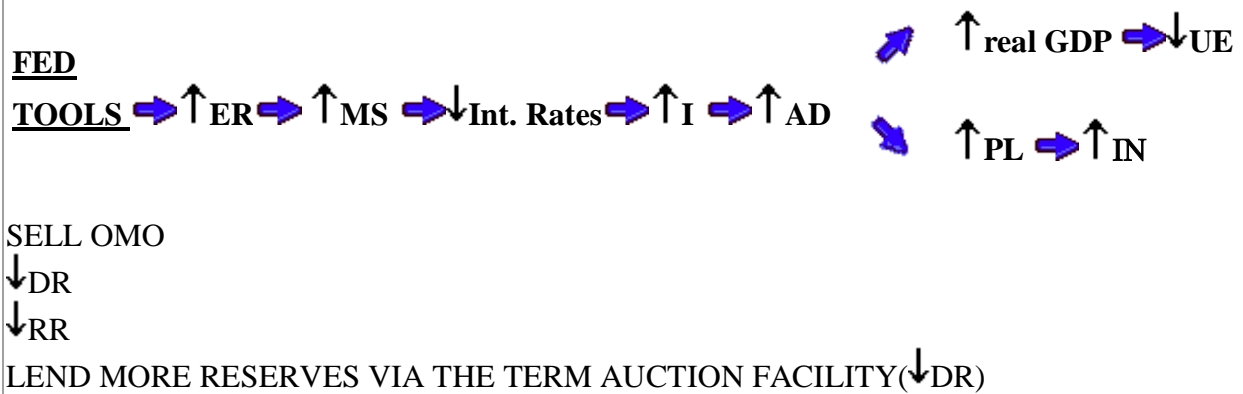| ASSETS	LIABILITIES & NET WORTH
cash in the vault **deposits at the Fed.** **loans made to customers** **government securities (bonds) bought by the banks** **Other (the building, computers, land, etc.)**	**Checking deposits of customers (call Demand Deposits (DD)** **Savings Accounts and CDs of customers** **Loans borrowed by the bank from the Fed or other banks** **Net Worth**

Balance Sheet of the Fed

ASSETS		‖	LIABILITIES	
Securities		‖	Reserves of banks	
Loans to banks		‖	Treasury deposits	
other		‖	Federal Res. Notes	
		‖	other	

SUMMARY: "Easy" or expansionary monetary policy

1. Occurs when the Fed tries to increase money supply by expanding excess reserves in order to stimulate the economy.
2. GOAL: to reduce unemployment
3. The Fed will enact one or more of the following measures.

    a. The Fed will **buy securities.**

    b. The Fed may **reduce reserve ratio**, although this is rarely changed because of its powerful impact.

    c. The Fed could **reduce the discount rate**, although this has little direct impact on the money supply.

    d. The Fed could auction off more reserves.

4. Expansionary or easy money policy: The Fed takes steps to increase excess reserves, banks can make more loans increasing the money supply, which lowers the interest rate and increases investment which, in turn, **increases GDP by a multiple amount of the change in investment.**

Keynesian Cause-Effect Chain of Monetary Policy:

FED TOOLS ➡ ↑**ER** ➡ ↑**MS** ➡ ↓**Int. Rates** ➡ ↑**I** ➡ ↑**AD** ➡ ↑**real GDP** ➡ ↓**UE**

                                                     ↑**PL** ➡ ↑**IN**

SELL OMO
↓DR
↓RR
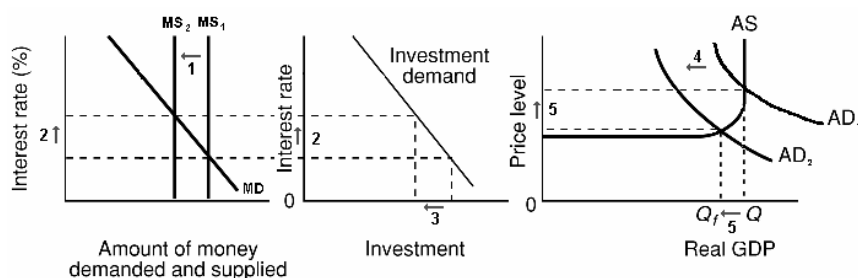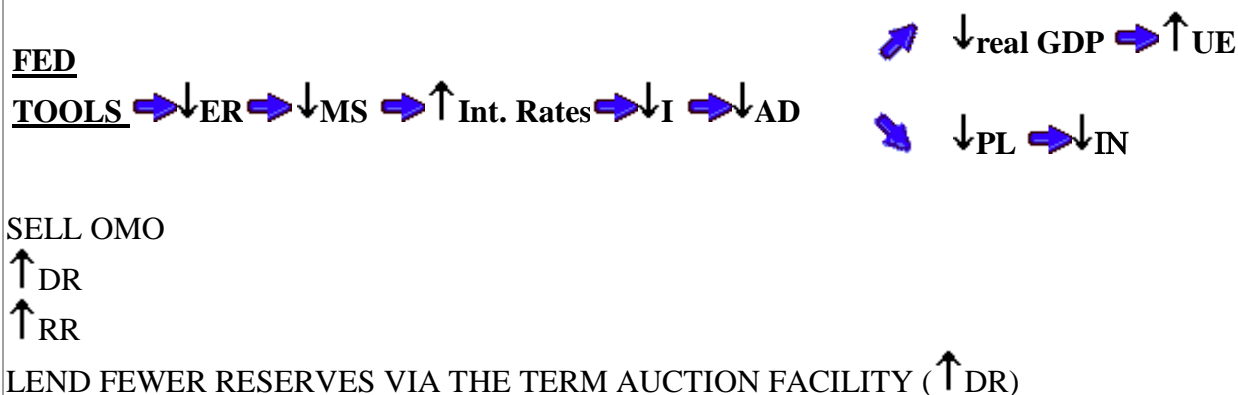LEND MORE RESERVES VIA THE TERM AUCTION FACILITY(↓DR)

The numbers on the graphs above indicate the correct order of the causes and effects.

"Tight" or contractionary monetary policy

1. Occurs when Fed tries to decrease money supply by decreasing excess reserves in order to slow spending in the economy during an inflationary period.
2. GOAL: to reduce inflation
3. The Fed will enact one or more of the following policies:
   a. The Fed will **sell securities**.
   b. The Fed may **raise the reserve ratio**, although this is rarely changed because of its powerful impact.
   c. The Fed could **raise the discount rate**, although it has little direct impact on money supply.
   d. The Fed could auction off fewer reserves.

4. Contractionary or tight money policy is the reverse of an easy policy: Excess reserves fall, the money supply decreases, which raises interest rate, which decreases investment, which, in turn, **decreases GDP by a multiple amount of the change in investment.**

Keynesian Cause-Effect Chain of Monetary Policy:

FED TOOLS ⟹ ↓ER ⟹ ↓MS ⟹ ↑Int. Rates ⟹ ↓I ⟹ ↓AD

↗ ↓real GDP ⟹ ↑UE

↘ ↓PL ⟹ ↓IN

SELL OMO
↑DR
↑RR
LEND FEWER RESERVES VIA THE TERM AUCTION FACILITY (↑DR)

The numbers on the graphs above indicate the correct order of the causes and effects.

Chapter 16
Review Questions

1. What are the two types of demand that make up total demand for money?

2. Analyze what would happen to the equilibrium rate of interest in the money market if the supply of money were increased while the demand schedule remained the same.

3. What are the four principal tools of monetary policy? Explain how they can be used to affect banks' excess reserves and the money supply.

4. Answer the next question based on the following consolidated balance sheet for the commercial banking system. Assume the required reserve ratio is 25%. All figures are in billions of dollars.

Assets		Liabilities + Net Worth	
Reserves	$100	Checkable deposits	$300
Securities	200		
Loans	100	Stock shares	700
Property	600		

(a)   What is the amount of excess reserves in this commercial banking system?

(b)   What is the maximum amount that the money supply can be expanded?

(c)   If the reserve ratio fell to 25%, what is now the maximum amount that the money supply can be expanded?

5. What is the difference between the Federal Reserve Banks' purchases of securities from the commercial banking system and those from the public? Give an example.

6. The following are simplified balance sheets for the commercial banking system and the Federal Reserve System. Perform each of the following three transactions, a, b, and c, making appropriate changes in columns (1) through (3) in each balance sheet. Do not cumulate your answers. Also, answer these three questions for each part: (a) What change, if any, took place in the money supply as a direct result of this transaction? (b) What change, if any, occurred in commercial bank reserves? (c) What change occurred in the money-creating potential of the commercial banking system if the reserve ratio is 20%? All figures are in billions of dollars.

Consolidated Balance Sheet: Commercial Banking System

		(1)	(2)	(3)
Assets:				
Reserves	$ 50	$_____	$_____	$_____
Securities	75	_____	_____	_____
Loans	75	_____	_____	_____
Liabilities:				
Checkable deposits	190	_____	_____	_____
Loans from FRBs	10	_____	_____	_____

Consolidated Balance Sheet: Federal Reserve Banks

		(1)	(2)	(3)
Assets:				
Securities	$90	$_____	$_____	$_____
Loans to CBs	10	_____	_____	_____
Liabilities:				
Reserves of CBs	50	_____	_____	_____
Treasury deposits	10	_____	_____	_____
Federal Reserve notes	40	_____	_____	_____

(1) Suppose a drop in the discount rate causes commercial banks to borrow an additional $3 billion from the Fed. Show the new sheet figures in column 1.

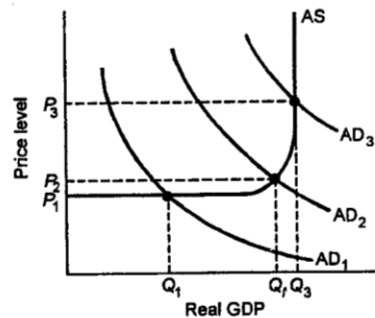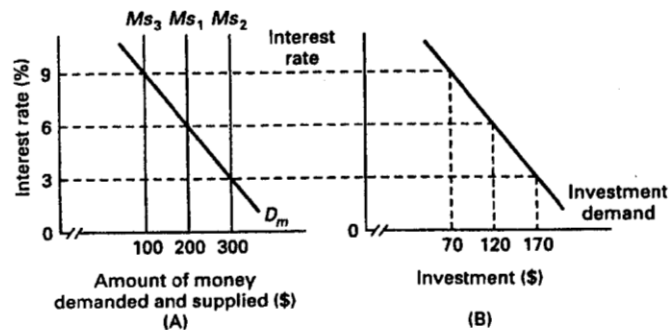(2) The Fed buys $2 billion of government bonds from the public. Show the new sheet figures in column 2.

(3) The Fed buys $2 billion of government bonds from commercial banks. Show the new sheet figures in column 3

7. Use the below graphs to answer the following questions assuming the nominal GDP in the economy is given.

(a) Look at graph A and suppose the supply of money increases from 100 to 200. What will be the equilibrium rate of interest?

(b) Look at graph B which shows an investment-demand curve for this economy. Given the answer to part (a) above, how much will investors plan to spend on capital goods?

(c) What will happen to aggregate demand?

(d) Now trace what will happen in parts (a)–(c) if the money supply increases to $300.

8. Suppose the economy is experiencing inflation. What would be the interpretation of how a restrictive monetary policy would address this problem?

9. Explain two strengths of monetary policy for achieving economic stability.

10.   One of the advantages of monetary policy is its speed and flexibility, but there are limitations. Explain.