

**EXAMINATION #4 VERSION B**  
**"Short-Run Business Cycles"**  
**November 24, 2014**

INSTRUCTIONS: This exam is closed-book, closed-notes. Simple calculators are permitted, but graphing calculators or calculators with alphabetical keyboards are NOT permitted. Cell phones or other wireless devices are NOT permitted. Point values for each question are noted in brackets. Points will be subtracted for illegible writing or incorrect rounding. Maximum total points are 100.

**I. Multiple choice:** Circle the one best answer to each question. [1 pts each, 16 pts total]

(1) Most economists believe that business cycles are caused mainly by fluctuations in

- a. the population.
- b. aggregate supply (that is, potential GDP).
- c. the labor force.
- d. the capital stock.
- e. aggregate demand.

(2) Which is said to have "momentum" in the short run?

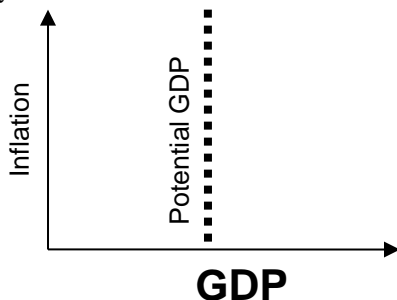
- a. the rate of inflation.
- b. the money supply.
- c. the interest rate.
- d. GDP.
- e. the rate of unemployment.

(3) When the unemployment rate is less than the natural rate of unemployment, GDP is usually

- a. less than potential GDP.
- b. equal to potential GDP.
- c. greater than potential GDP.
- d. equal to the unemployment rate.

(4) On a graph like that below, most economic fluctuations cause the economy to

- a. move horizontally left and right.
- b. move vertically up and down.
- c. cycle in a clockwise direction.
- d. cycle in a counterclockwise direction.



(5) Keynes's consumption function implies that if government purchases increase, then in the short run, GDP will

- a. decrease.
- b. increase by exactly the same amount as the change in government purchases.
- c. increase by more than the change in government purchases.
- d. increase by less than the change in government purchases.

(6) According to the "permanent-income hypothesis," which is likely to cause the largest decrease in consumption spending *this year*?

- a. A 10 percent tax increase for this year only.
- b. A 10 percent tax cut for this year only.
- c. A 10 percent tax increase lasting ten years.
- d. A 10 percent tax cut lasting ten years.

(7) If interest rates rise in the U.S. but remain constant in other countries, then exports from the U.S. will fall because

- a. importers in other countries will not want to borrow dollars.
- b. exporters will be discouraged from borrowing.
- c. the U.S. dollar will appreciate against other currencies.
- d. the government's budget deficit will grow as higher interest payments must be made.

(8) Under a monetary policy rule typical of most countries, if inflation rises, the central bank will try to

- a. reduce the rate at which the government spends money.
- b. increase the real interest rate.
- c. increase the money supply.
- d. raise taxes.

(9) Suppose GDP initially equals potential GDP. Then government purchases are increased sharply. What happens *first*, according to the standard model of economic fluctuations?

- a. the unemployment rate increases.
- b. exports increase.
- c. the inflation rate increases.
- d. the interest rate increases.
- e. GDP increases.

(10) A boom caused by relaxed monetary policy eventually results in

- a. higher inflation.
- b. a recession.
- c. lower inflation.
- d. lower interest rates.

(11) Suppose at the end of last year, the federal debt were \$8 trillion. Suppose this year the government ran a budget *surplus* of \$0.5 trillion. Then at the end of this year, the federal debt would be

- a. \$0.5 trillion.
- b. \$7.5 trillion.
- c. \$8.0 trillion.
- d. \$8.5 trillion.
- e. Cannot be determined.

(12) Which of the following is an “automatic stabilizer” for the economy?

- a. the money supply.
- b. highway construction.
- c. balanced-budget laws.
- d. defense spending.
- e. tax payments.

(13) Suppose the deficit is reduced by quickly increasing taxes or decreasing spending. This may, in the short run, cause

- a. a recession.
- b. a price shock.
- c. a decrease in the money supply.
- d. hyperinflation.
- e. a price bubble.
- f. a boom.

(14) Who sets monetary policy in the United States?

- a. The Federal Reserve District Banks.
- b. The Federal Open Market Committee.
- c. The Secretary of the Treasury.
- d. The Federal Deposit Insurance Corporation.
- e. The President.
- f. The Senate Banking Committee.
- g. The Federal Reserve Board of Governors.

(15) The federal funds rate is the

- a. interest rate the Federal Reserve charges banks.
- b. average market interest rate on all bonds issued by the federal government.
- c. rate of increase of federal government spending.
- d. interest rate that banks charge each other for overnight loans of reserves.

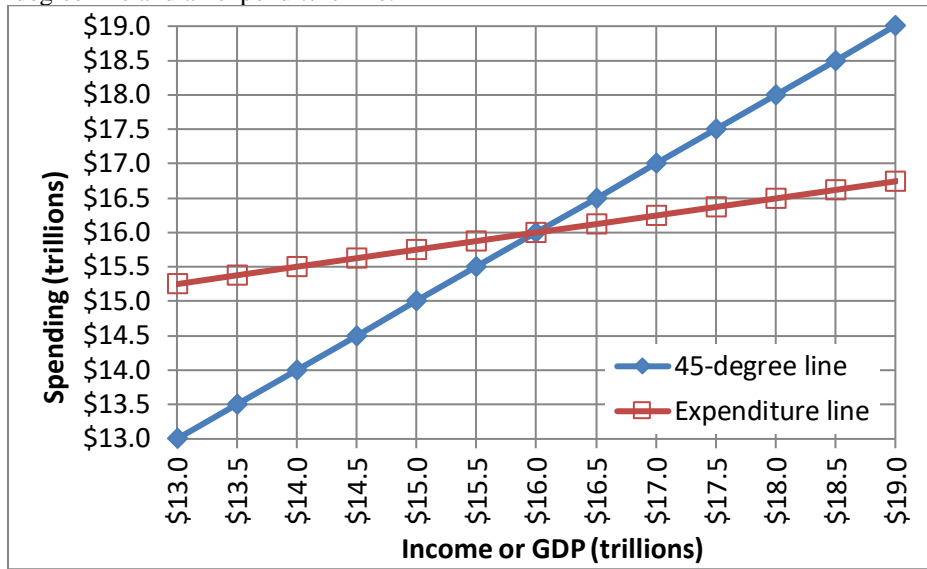
(16) Monetary policy is said to be *credible* if people believe the central bank will

- a. avoid a recession at all costs.
- b. keep the unemployment rate low.
- c. keep interest rates low to spur growth.
- d. do what it says it will do.

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**II. Problems:** Insert your answer to each question in the box provided. Use graphs and margins for scratch work. Only the answers in the boxes will be graded. Work carefully: partial credit is not normally given for questions in this section.

(1) [Keynesian cross, Keynesian multipliers: 12 pts] The following diagram shows a Keynesian cross diagram, including a 45-degree line and an expenditure line.



a. What is the current level of real GDP—that is, the point of "spending balance"?

\$	trillion
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Suppose government purchases *increase* by \$ 1.5 trillion.

b. Does the expenditure line shift *up or down* in the short run?

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c. By how much (measured vertically)?

\$	trillion
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d. Does GDP *increase or decrease* in the short run?

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e. By how much?

\$	trillion
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f. Compute the government-purchases multiplier from your previous answers to this problem.

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(2) [Consumption function, Keynesian cross, Keynesian multipliers: 8 pts] Suppose the marginal propensity to consume is 0.3 and the marginal propensity to import is 0.10 . Assume no other spending components of GDP are affected by aggregate income.

a. Compute the slope of the consumption function.

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b. Compute the slope of the expenditure line in the Keynesian cross diagram.

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c. Compute the government-purchases multiplier.

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d. By how much does GDP increase in the short run if government purchases (G) increase by \$ 300 billion?

\$	billion
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e. How much of an increase in government purchases is required to raise GDP by \$ 300 billion?

\$	billion
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f. Compute the tax-cut multiplier.

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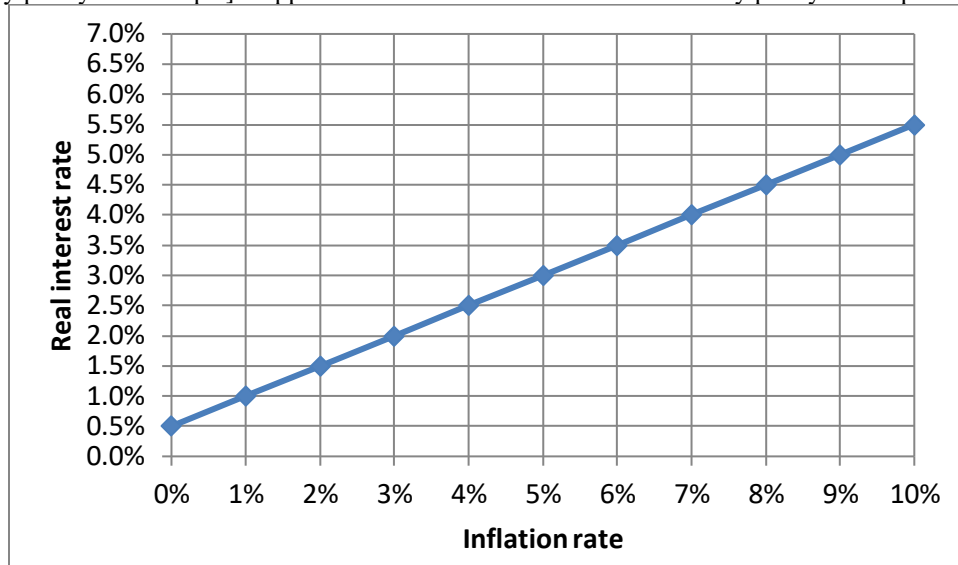
g. How much of a tax cut is required to raise GDP by \$ 300 billion?

\$	billion
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h. Suppose taxes and government purchases are to be increased simultaneously by exactly the same amount. What amount is required to raise GDP by \$ 300 billion?

\$	billion
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(3) [Monetary policy rule: 10 pts] Suppose the central bank follows the monetary policy rule depicted below.



Suppose the inflation rate is now **4 %**.

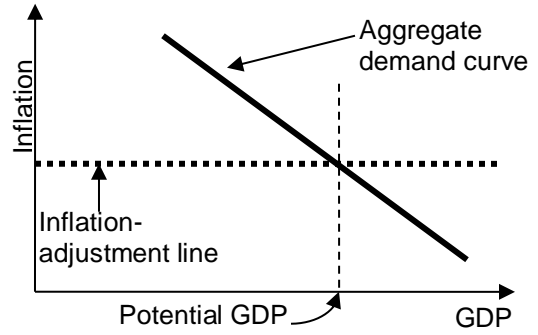
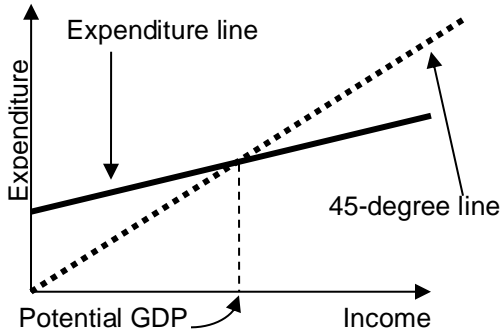
- What level of the *real* interest rate will the central bank set?
- What level of the *nominal* interest rate does this imply?
- Suppose monetary policy is “relaxed.” Does that mean that the policy rule curve shifts *up*, shifts *down*, or remains *unchanged*?
- In the *short run*, will GDP *increase*, *decrease*, or remain *unchanged*?
- In the *short run*, will the inflation rate *increase*, *decrease*, or remain *unchanged*?

	%
	%

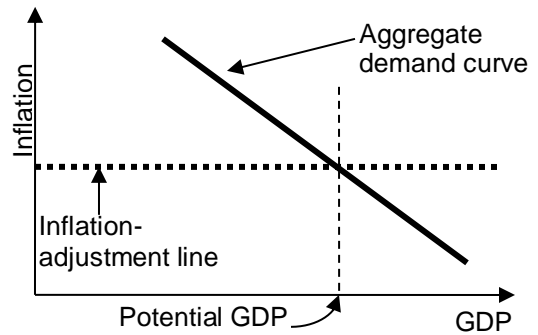
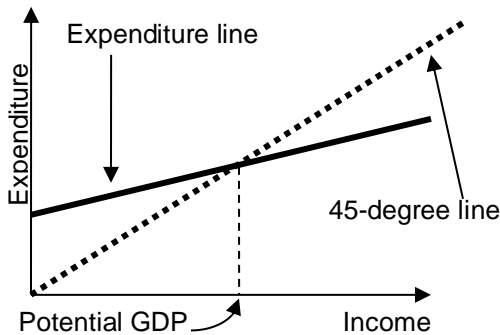
(4) [How business cycles begin: 20 pts] Assume GDP initially equals potential GDP and consider the *short-run* consequences of each scenario in the left column. Indicate whether and how the scenario shifts the expenditure line in the Keynesian cross diagram. Then indicate whether and how it shifts the “aggregate demand” (AD) curve in the diagram used in Taylor’s textbook in the *short run*. Indicate whether the scenario is likely to cause a recession, a boom or neither (assuming GDP was initially equal to potential GDP). **On the next page, on the graphs for each scenario, show the shifts in curves.**

	Expenditure line shifts <i>up, down or unchanged?</i>	AD curve shifts <i>left, right, or unchanged?</i>	Causes <i>recession, boom, or neither?</i>
a. The government rapidly decreases spending on national defense.			
b. Taxes are decreased sharply.			
c. Monetary policy is “tightened.”			
d. Businesses suddenly feel optimistic about the future and start rapidly investing in new capital.			

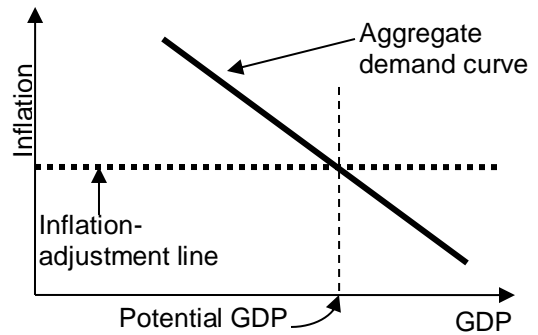
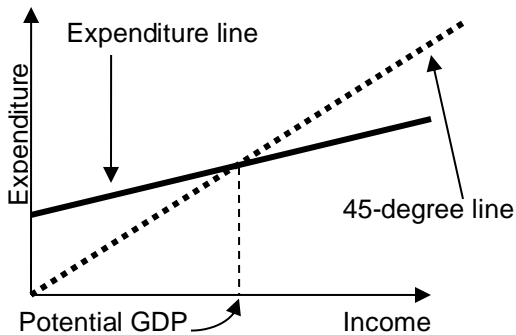
**a. The government rapidly decreases spending on national defense.**



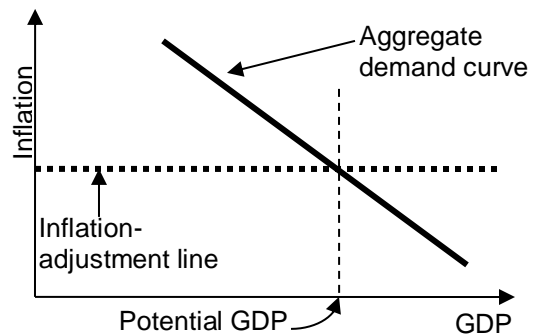
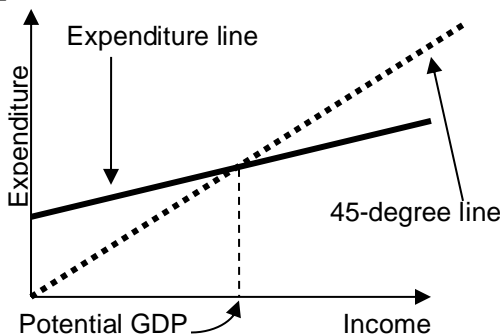
**b. Taxes are decreased sharply.**



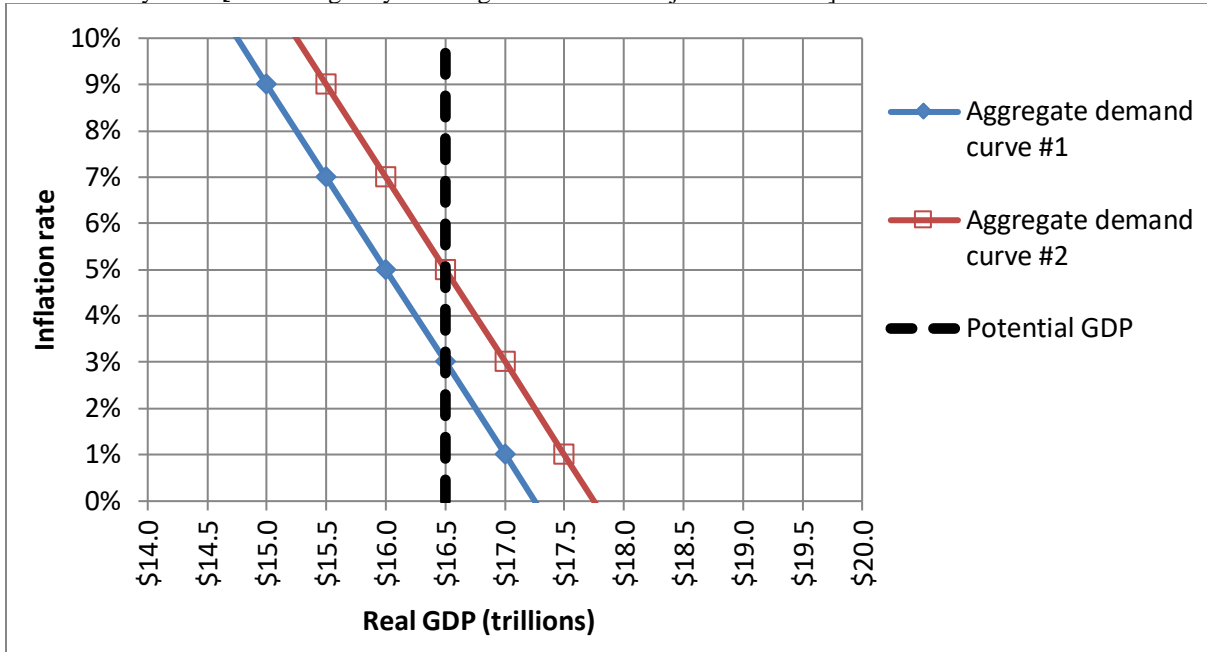
**c. Monetary policy is "tightened."**



**d. Businesses suddenly feel optimistic about the future and start rapidly investing in new capital.**



(5) [Inflation adjustment: 16 pts] Consider the following graph of the macroeconomy, similar to those in Taylor's textbook. Suppose that the aggregate demand curve is currently at "aggregate demand curve #1" and the inflation rate is currently 3%. [Hint: Begin by drawing the "inflation adjustment" line.]



a. What is the current level of real GDP?

\$	trillion

b. Is the unemployment rate currently *greater* than the natural rate, *less* than the natural rate, or *equal* to the natural rate of unemployment?

Now suppose the government passes a large spending increase and the aggregate demand curve shifts to "aggregate demand curve #2."

c. What is the level of real GDP in the short run?

\$	trillion
%	

d. What is the inflation rate in the short run?

e. Is the unemployment rate *greater* than the natural rate, *less* than the natural rate, or *equal* to the natural rate of unemployment in the short run?

f. What will be the level of real GDP in the long run?

\$	trillion
%	

g. What will be the inflation rate in the long run?

h. Is the unemployment rate *greater* than the natural rate, *less* than the natural rate, or *equal* to the natural rate of unemployment in the long run?

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(6) [Fiscal policy, tax rates: 4 pts] Suppose person has income of \$60,000 and owes a total of \$9000 in taxes.

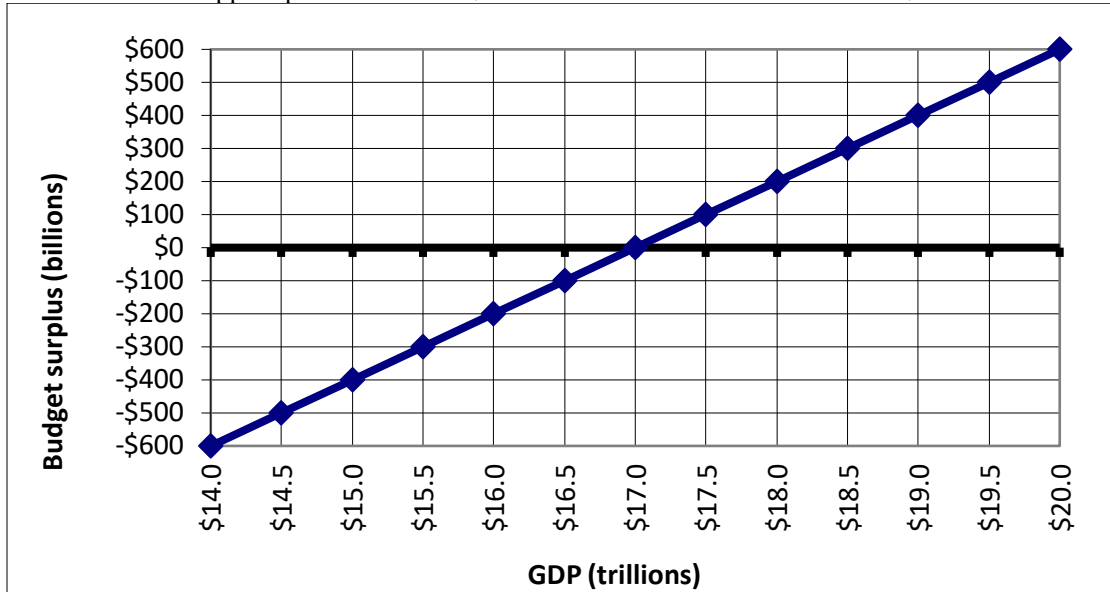
a. Compute this person's *average tax rate*.

%	
\$	

b. Suppose this person's *marginal tax rate* is 25%. Compute the **total** amount this person would owe in taxes if this person's income were \$60,500.

\$	
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(7) [Fiscal policy: 5 pts] The graph below shows the relationship between the federal budget surplus (or deficit) and the level of GDP. Suppose potential GDP is \$16.0 trillion and actual level of GDP is \$15.5 trillion.



- Is the economy in a *boom*, a *recession*, or *neither*?
- Is there an actual budget *surplus*, an actual budget *deficit*, or an actual *balanced budget*?
- How much?
- Is there a structural budget *surplus*, a structural budget *deficit*, or a structural *balanced budget*?
- How much?

\$                      billion
\$                      billion

(8) [Monetary policy: 6 pts] According to the *Wall Street Journal*, “one rule of thumb at the Fed is that long-term interest rates fall 0.03 percentage point ... for every \$100 billion of long-term bonds that the central bank purchases.”<sup>1</sup> Use this rule of thumb to answer the following questions.

First, suppose that the Fed **sells \$300 billion** of long-term bonds.

- Will the money supply *increase* or *decrease*?
- Will interest rates *increase* or *decrease*?
- By how much--that is, by how many percentage points?

percentage points

Alternatively, suppose that the Fed wants to **raise interest rates by 0.24 percentage points**.

- Will the Fed *buy* bonds or *sell* bonds?
- How much?
- Will the money supply *increase* or *decrease* as a result?

\$                      billion

<sup>1</sup> *Wall Street Journal*, June 21, 2012, p. A14.

**III. Critical thinking:** Write a one-paragraph essay answering ONE question below (your choice). [3 pts]

- (1) Consider the following statement. “The federal budget deficit contributes to inflation, because whatever federal spending is not paid for by taxes must be made up by printing money.” Do you agree or disagree? Why?
- (2) The Federal Reserve does not tell banks what interest rates to charge. So how can the Federal Reserve "set" interest rates?

Please circle the question you are answering and write your answer below. Full credit requires correct economic reasoning, legible writing, good grammar including complete sentences, and accurate spelling.

[end of exam]