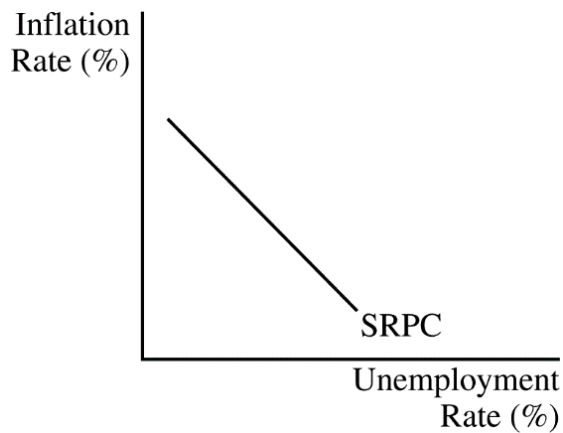
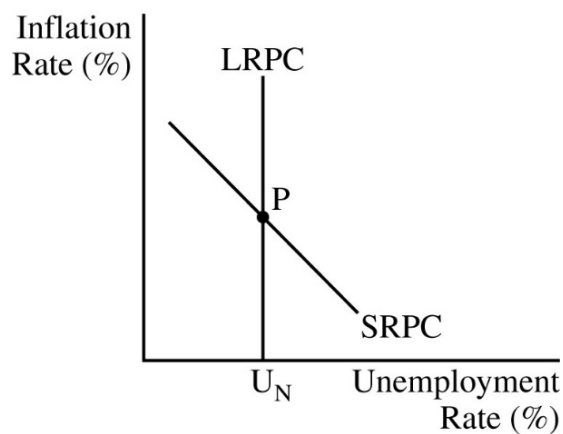


Question 1: Long**10 points****A** Draw a correctly labeled graph of the short-run Phillips curve (SRPC).**1 point**

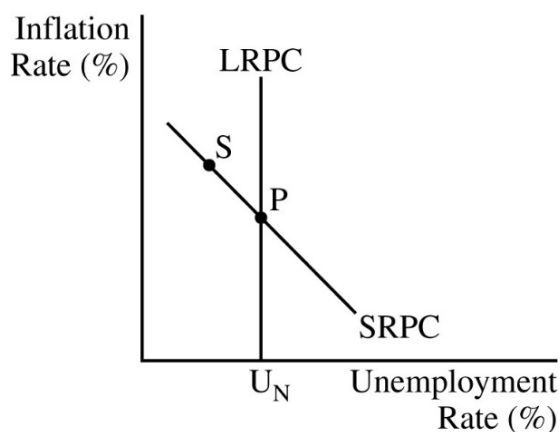
Point 1



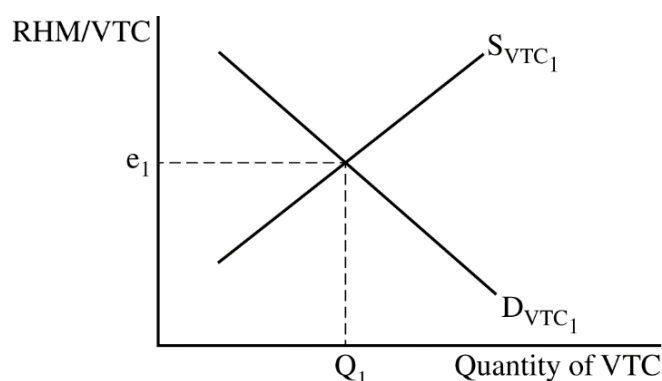
Point 2 The graph must include a correctly labeled long-run Phillips curve (LRPC) and show a point labeled P at the intersection of the short-run and long-run Phillips curves.

1 pointPoint 3 **B (i)** State that real output will increase and explain that the new residential construction projects increase investment spending, which increases aggregate demand.**1 point****(ii)** On the graph from part A, show a point labeled S on the SRPC to the left of point P.**1 point**

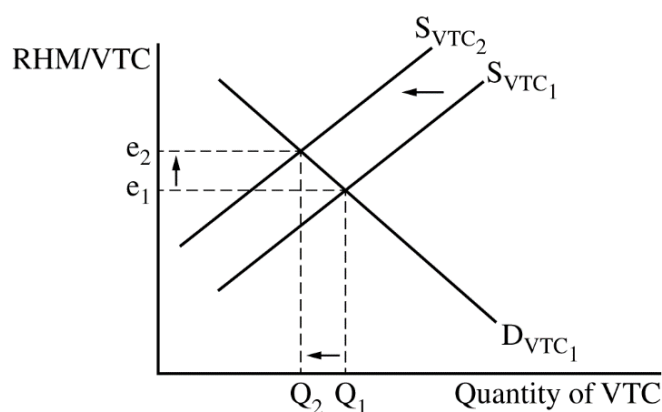
Point 4



- C** Draw a correctly labeled graph of the foreign exchange market for the Vortanian crown. **1 point**
Point 5



- Point 6 The graph must show a leftward shift in the supply curve of the Vortanian crown, resulting in an appreciation of the Vortanian crown. **1 point**



- D** State that Vortania's net exports will decrease. **1 point**

Point 7

- E (i)** State that the capital and financial account (CFA) balance in Vortania will move into surplus and explain that the current account (CA) moved into deficit and the balance of payments must balance ($CA + CFA = 0$). **1 point**
Point 8

- (ii)** State that employment in Vortania will decrease. **1 point**

Point 9

- F** State that the central bank of Vortania would sell Vortanian crowns in the foreign exchange market and explain that the increased supply of the Vortanian crown will cause it to depreciate. **1 point**
Point 10

Question 2: Short

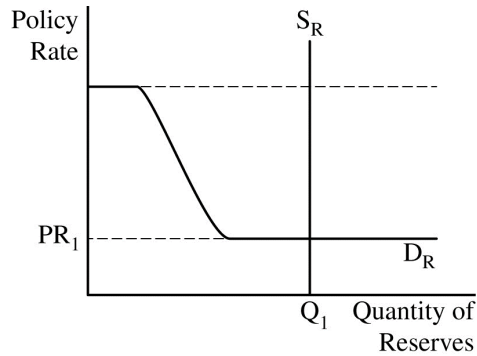
5 points

A State that the central bank would increase its administered interest rates or increase interest on reserves. **1 point**

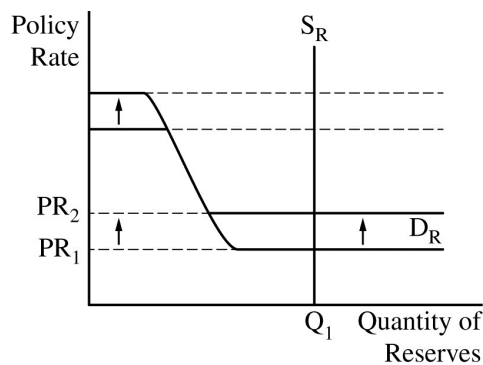
Point 1

B Draw a correctly labeled graph of the reserve market with the supply curve intersecting the demand curve in the range of ample reserves. **1 point**

Point 2

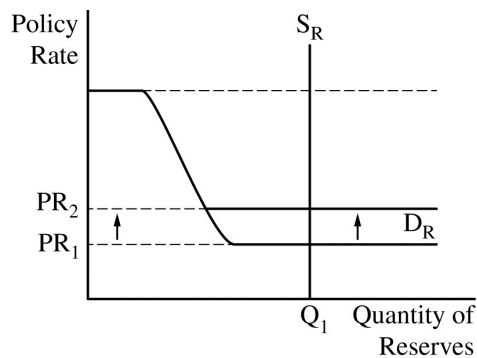


Point 3 The graph must show an increase in the administered interest rates, resulting in an increase in the policy rate. **1 point**



OR

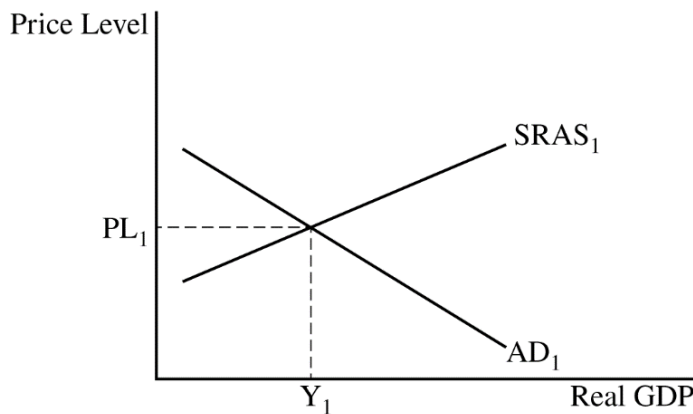
The graph must show an increase in the lower bound of the demand curve for reserves, resulting in an increase in the policy rate.



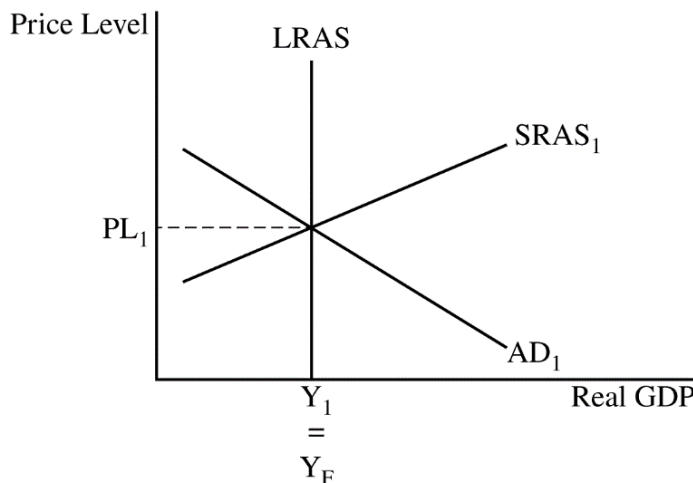
- | | | | |
|----------|-------------|---|----------------|
| C | (i) | State that the price of previously issued bonds will decrease. | 1 point |
| <hr/> | | | |
| Point 4 | | | |
| | (ii) | State that the price level will decrease and explain that the increase in interest rates will decrease interest-sensitive spending (consumption, investment, or net exports), which will decrease aggregate demand. | 1 point |
| Point 5 | | | |

Question 1: Long**10 points**

- | | | |
|------------|---|----------------|
| (a) | Draw a correctly labeled aggregate demand–aggregate supply graph that shows PL_1 and Y_1 at the intersection of the aggregate demand (AD) and short-run aggregate supply (SRAS) curves. | 1 point |
|------------|---|----------------|



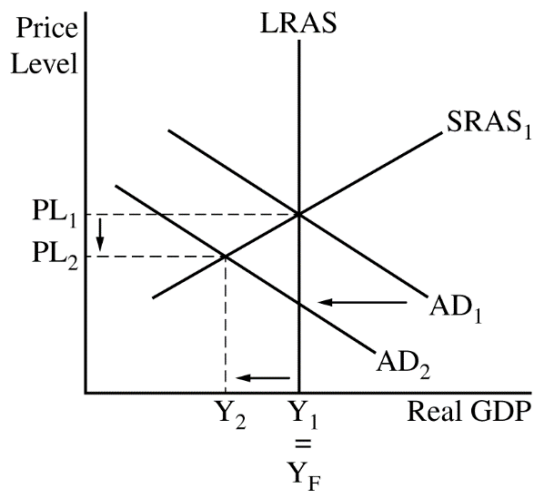
- | | |
|--|----------------|
| For the second point, the graph must show a vertical long-run aggregate supply (LRAS) curve at equilibrium real output $Y_1 = Y_F$. | 1 point |
|--|----------------|

**Total for part (a) 2 points**

- | | | |
|----------------|---|----------------|
| (b) (i) | Calculate the marginal propensity to consume as 0.4 and show your work. | 1 point |
|----------------|---|----------------|

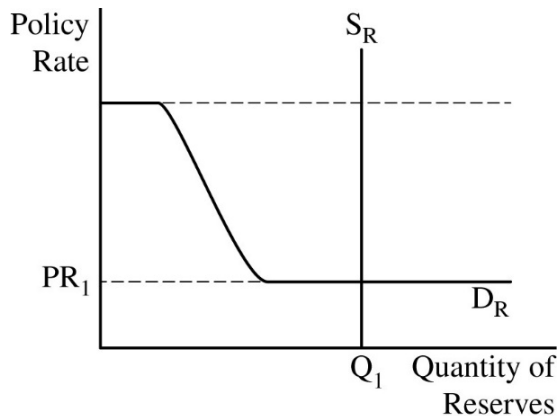
$$MPC = \frac{\Delta \text{Consumer Spending}}{\Delta \text{Disposable Income}} = \frac{\$100,000 - \$110,000}{\$110,000 - \$135,000} = \frac{-\$10,000}{-\$25,000} = 0.4$$

- (ii) On the graph from part (a), show the short-run effect of the decrease in consumer spending as a leftward shift of the AD curve, resulting in a decrease in the price level to PL_2 and a decrease in real output to Y_2 . 1 point

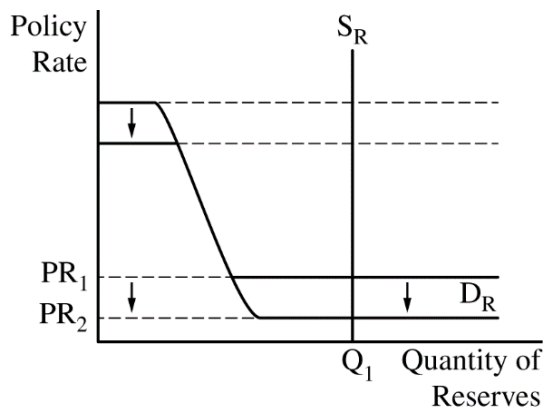


Total for part (b) 2 points

- (c) Explain that input prices (e.g., nominal wages) and/or inflationary expectations will decrease, causing SRAS to increase until it reaches full employment. 1 point
- (d) State that the central bank would decrease its administered interest rates or decrease interest on reserves. 1 point
- (e) Draw a correctly labeled graph of the reserve market with the supply curve intersecting the demand curve in the range of ample reserves. 1 point

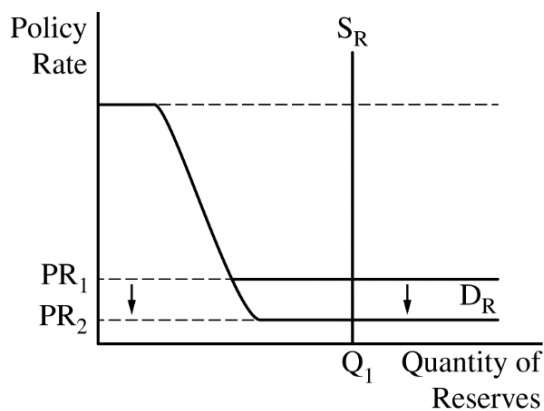


For the second point, the graph must show a decrease in the administered interest rates, resulting in a decrease in the policy rate. **1 point**



OR

For the second point, the graph must show a decrease in the lower bound of the demand curve for reserves, resulting in a decrease in the policy rate.



Total for part (e) 2 points

(f) For the first point, state that the quantity of national savings would decrease and the unemployment rate would decrease. **1 point**

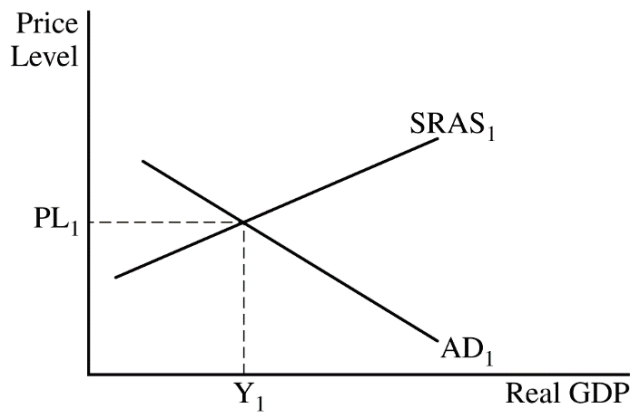
For the second point, explain that the decrease in nominal interest rates will increase interest-sensitive spending (consumption, investment, or net exports), causing an increase in aggregate demand and real output. **1 point**

Total for part (f) 2 points

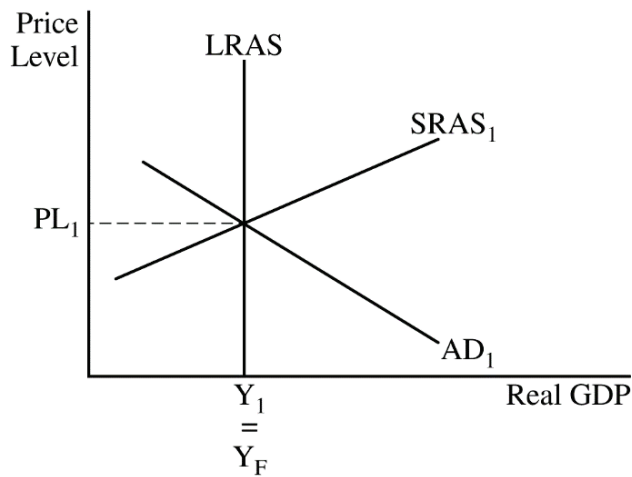
Total for question 1 10 points

Question 3: Short**5 points**

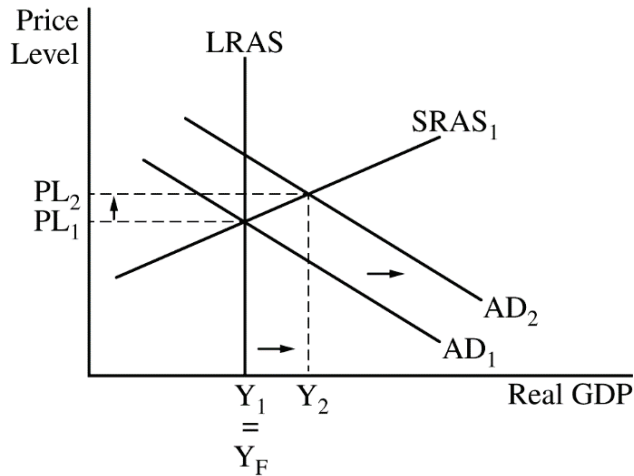
- (a) Draw a correctly labeled aggregate demand–aggregate supply graph that shows PL_1 and Y_1 at the intersection of aggregate demand and short-run aggregate supply. **1 point**



- For the second point, the graph must show a vertical long-run aggregate supply curve at equilibrium real output $Y_1 = Y_F$. **1 point**

**Total for part (a) 2 points**

- (b) On the graph from part (a), show the short-run effect of the increase in consumer confidence as a rightward shift of the aggregate demand curve, resulting in an increase in real output, labeled Y_2 , and an increase in the price level, labeled PL_2 . **1 point**

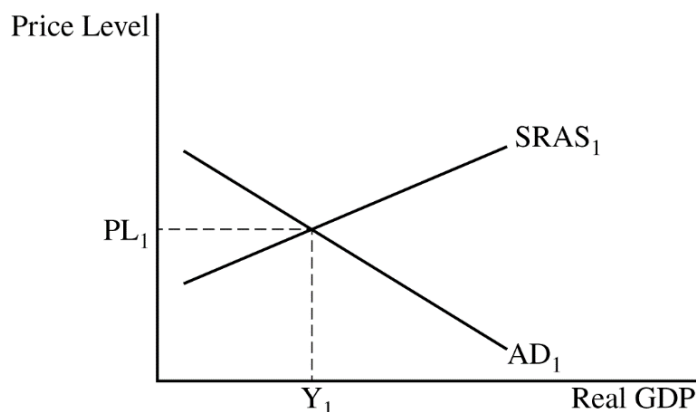


- (c) State that the central bank would increase its administered interest rates or increase interest on reserves. **1 point**
- (d) State that real output will decrease and explain that the increase in interest rates will decrease interest-sensitive spending (consumption, investment, or net exports), which decreases aggregate demand. **1 point**

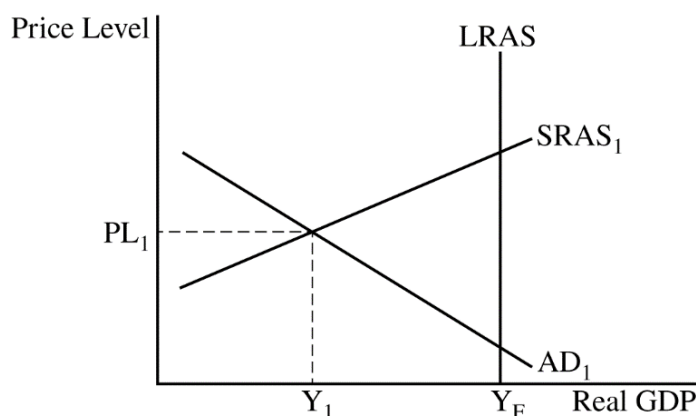
Total for question 3 5 points

Question 1: Long**10 points**

- (a) Draw a correctly labeled aggregate demand-aggregate supply graph that shows PL_1 and Y_1 at the intersection of aggregate demand and short-run aggregate supply. **1 point**



- For the second point, the graph must show a vertical long-run aggregate supply curve to the right of Y_1 and label the full-employment output Y_F . **1 point**

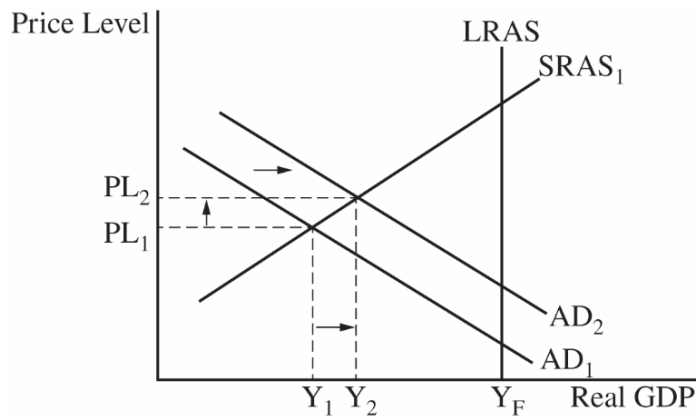
**Total for part (a) 2 points**

- (b) State an increase in government spending, a decrease in taxes, or an increase in transfer payments. **1 point**

- (c) Calculate the minimum change in investment spending as \$50 billion and show your work. **1 point**

$$\text{Minimum Change in Investment Spending} = \frac{\$200 \text{ billion}}{\left(\frac{1}{0.25}\right)} = \$50 \text{ billion}$$

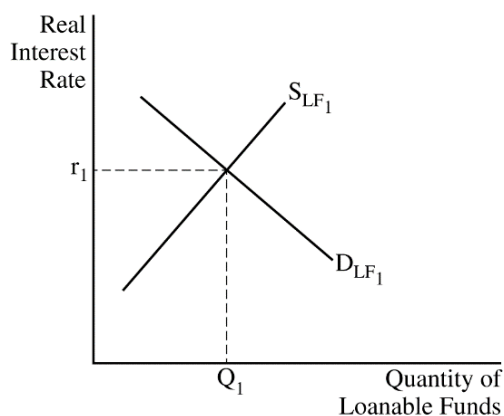
- (d) On the graph from part (a), show the short-run effect of the change in investment spending as a rightward shift of the aggregate demand curve, resulting in a higher equilibrium price level and higher equilibrium real output that is less than full-employment output, labeled PL_2 and Y_2 respectively. **1 point**



- (e) State that the actual rate of unemployment is greater than the natural rate of unemployment and explain that the economy is still in a recessionary gap. **1 point**

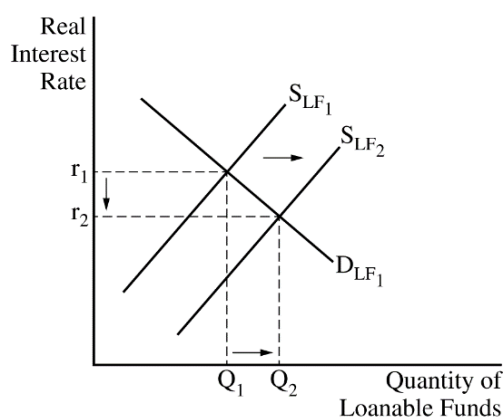
(f) Draw a correctly labeled graph of the loanable funds market.

1 point



For the second point, the graph must show a rightward shift in the supply of loanable funds curve, resulting in a decrease in the equilibrium real interest rate.

1 point



Total for part (f) 2 points

(g) (i) State that real GDP will increase in the short run and explain that interest-sensitive spending (consumption, investment, or net exports) will increase, which will increase aggregate demand.

1 point

(ii) State that long-run aggregate supply will increase and explain that the decrease in the real interest rate means the cost of borrowing has decreased, which increases investment spending on plant and equipment and increases capital formation, which will increase potential output.

1 point

Total for part (g) 2 points

Total for question 1 10 points

Question 3: Short**5 points**

(a) State that the cyclical rate of unemployment in Flowerland is 2%. **1 point**

(b) (i) State that aggregate demand will increase and explain that net exports will increase. **1 point**

(ii) State that cyclical unemployment will decrease. **1 point**

Total for part (b) 2 points

(c) Calculate the price index for year 2020 as 130 and show your work. **1 point**

$$\frac{\text{Value of the market basket in 2020}}{\text{Value of the market basket in 2019}} \times 100 = \frac{(\$4 \times 40) + (\$25 \times 4)}{(\$3 \times 40) + (\$20 \times 4)} \times 100 = \frac{\$260}{\$200} \times 100 = 130$$

(d) State that the standard of living of the average citizen of Flowerland will decrease and explain that the increase in nominal income (20%) is less than the inflation rate (30%). **1 point**

Total for question 3 5 points

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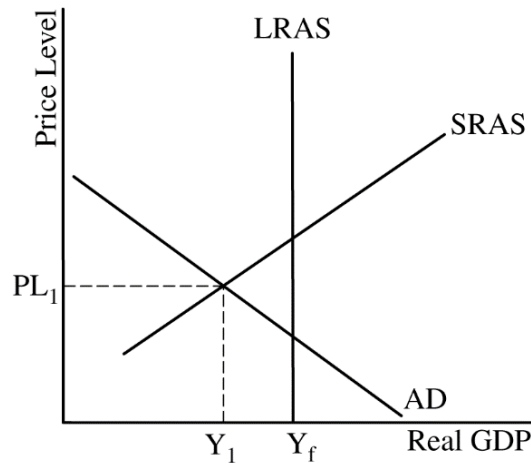
AP Macroeconomics

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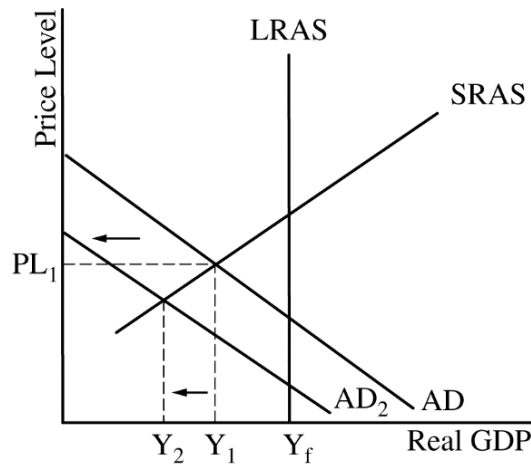
Question 1

10 points (2 + 3 + 2 + 3)



(a) 2 points:

- One point is earned for drawing a correctly labeled graph for aggregate demand (AD) and short-run aggregate supply (SRAS), showing PL_1 and Y_1 at the intersection of AD and SRAS.
- One point is earned for drawing a vertical LRAS curve to the right of Y_1 .

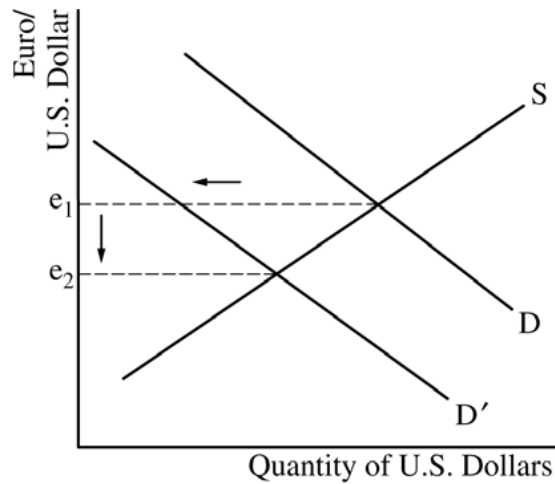


(b) 3 points:

- One point is earned for stating that United States exports will decrease and for explaining that the fall in income in the euro zone reduces the demand for United States goods.
- One point is earned for showing a leftward shift of the aggregate demand (AD) curve and showing lower United States real output on the graph.
- One point is earned for stating that unemployment in the U.S. will increase.

2018 SCORING GUIDELINES

Question 1 (continued)



(c) 2 points:

- One point is earned for stating that the euro will appreciate against the U.S. dollar because the supply of euros decreases OR because the dollar depreciates against the euro, the euro must appreciate.
- One point is earned for drawing a correctly labeled graph of the foreign exchange market for dollars and for showing a leftward shift in the demand curve for the dollar, which would result in a depreciation of the dollar.

(d) 3 points:

- One point is earned for stating that the U.S. aggregate demand will increase.
- One point is earned for stating that the U.S. price level will increase.
- One point is earned for stating that the change in the interest rate is indeterminate and for explaining that the combination of expansionary fiscal and monetary policies has opposite effects on interest rates (the expansionary fiscal policy will increase the interest rate, as government borrows to finance its spending, and the expansionary monetary policy will increase the money supply and decrease the interest rate).

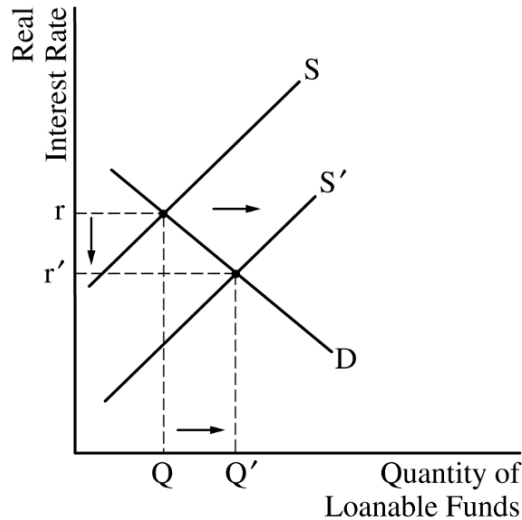
2018 SCORING GUIDELINES

Question 2

5 points (1 + 2 + 2)

(a) 1 point:

- One point is earned for stating that private savings will increase.



(b) 2 points:

- One point is earned for drawing a correctly labeled graph of the loanable funds market showing a downward sloping demand curve and an upward sloping supply curve.
- One point is earned for showing a rightward shift in the supply curve (increased private savings) and for showing a decrease in the equilibrium real interest rate.

(c) 2 points:

- One point is earned for stating that aggregate demand will increase and for explaining that the decrease in the real interest rate will result in an increase in interest-sensitive spending (consumption or investment or net exports).
- One point is earned for stating that potential real gross domestic product (GDP) will increase as a result of an increase in capital formation brought about by the increase in investment spending (or because capital formation increased the long-run aggregate supply).

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Question 3

5 Points (1 + 1 + 1 + 2)

(a) 1 point:

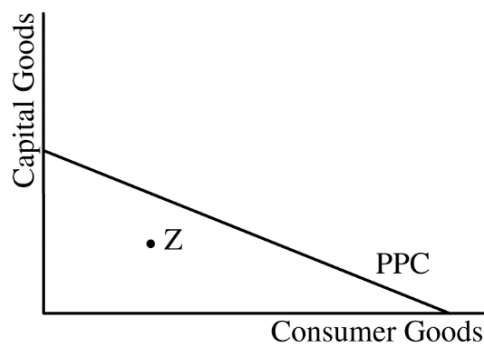
- One point is earned for stating that neither country has a comparative advantage in producing consumer goods and for explaining that the opportunity cost of producing 1 unit of consumer goods is the same for both countries (which is 1/2 a unit of capital goods).

(b) 1 point:

- One point is earned for correctly calculating the unemployment rate as 10 percent ($20,000/200,000 \times 100 = 10\%$).

(c) 1 point:

- One point is earned for correctly calculating the labor force participation rate as 66.67 percent ($200,000/300,000 \times 100 = 66.67\%$).



(d) 2 points:

- One point is earned for drawing a correctly labeled graph of the production possibilities curve (PPC).
- One point is earned for correctly showing point Z below the PPC.

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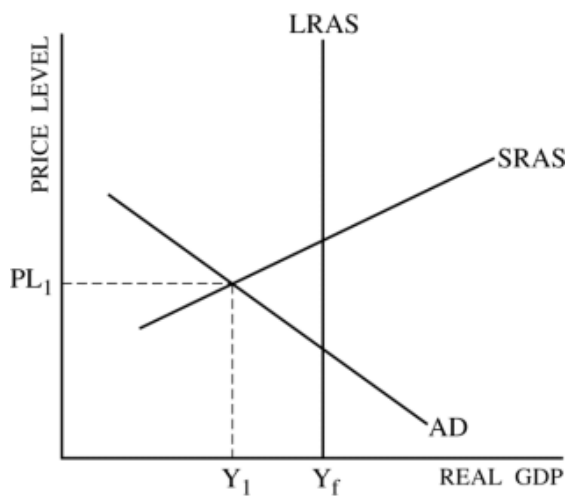
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2015 SCORING GUIDELINES

Question 1

10 points (2+1+2+3+2)

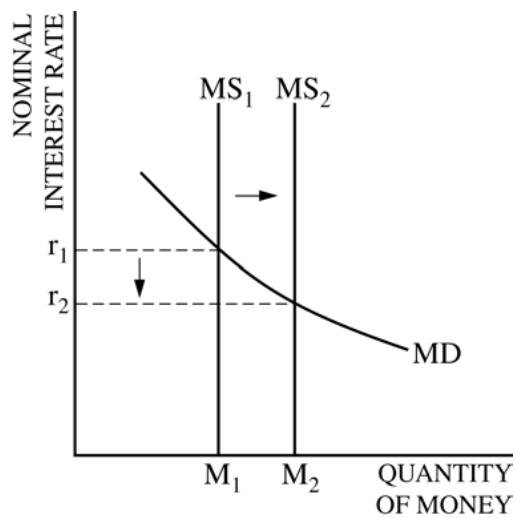


(a) 2 points:

- One point is earned for drawing a correctly labeled graph showing AD, SRAS, Y_1 and PL_1 .
- One point is earned for drawing a vertical LRAS at Y_f to the right of Y_1 .

(b) 1 point:

- One point is earned for stating that the Federal Reserve should target a lower federal funds rate.



(c) 2 points:

- One point is earned for drawing a correctly labeled money market graph.
- One point is earned for shifting the money supply curve to the right and showing a decrease in the nominal interest rate.

2015 SCORING GUIDELINES

Question 1 (continued)

(d) 3 points:

- One point is earned for calculating the minimum required change in government spending: \$60 billion ($\$300/5 = \60).
- One point is earned for stating that the minimum required change in taxes will be greater than the minimum required change in government spending.
- One point is earned for explaining that the tax multiplier ($mpc/mps = 0.8/0.2 = 4$) is smaller than the government spending multiplier ($1/mps = 1/0.2 = 5$) because part of the initial increase in disposable income caused by the decrease in income tax will be saved rather than spent.

(e) 2 points:

- One point is earned for stating that aggregate demand will increase and for explaining that lower income tax rates will increase disposable income and/or consumption and investment.
- One point is earned for stating that long-run aggregate supply will stay the same because lowering income taxes will increase consumption and/or investment, or there is no change in inputs.
OR
One point is earned for stating that long-run aggregate supply will increase in the long run because lowering taxes will increase savings and investment in physical capital, or because of increased incentives to work.
OR
One point is earned for stating that long-run aggregate supply will decrease in the long run because lowering taxes leads to a crowding out of private investment.

2015 SCORING GUIDELINES

Question 2

5 points (1+1+2+1)

(a) 1 point:

- One point is earned for stating that Country Y has an absolute advantage in producing solar panels.

(b) 1 point:

- One point is earned for calculating the opportunity cost of a furnace for Country Y: 2 solar panels per furnace.

(c) 2 points:

- One point is earned for stating that Country X has the comparative advantage in producing furnaces.
- One point is earned for explaining that Country X has a lower opportunity cost of producing furnaces than Country Y.

(d) 1 point:

- One point is earned for stating that Country X should produce solar panels domestically.

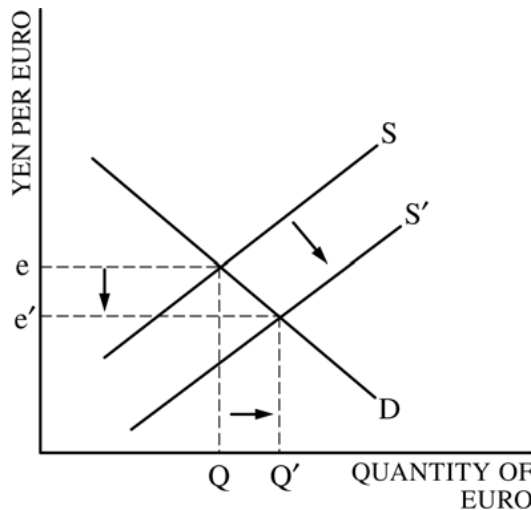
2015 SCORING GUIDELINES

Question 3

6 points (2+3+1)

(a) 2 points:

- One point is earned for stating that the real interest rate in Japan will increase in the short run because the supply of loanable funds will decrease or the demand for loanable funds will increase.
- One point is earned for stating that private domestic investment in plant and equipment in Japan will decrease.



(b) 3 points:

- One point is earned for drawing a correctly labeled graph of the foreign exchange market for the euro.
- One point is earned for showing that the supply curve for euros shifts to the right and for concluding that the yen price of the euro decreases.
- One point is earned for explaining that the European purchases of Japanese financial assets will increase due to the relatively higher rate of return in Japan.

(c) 1 point:

- One point is earned for stating that European Central Bank should buy euros.

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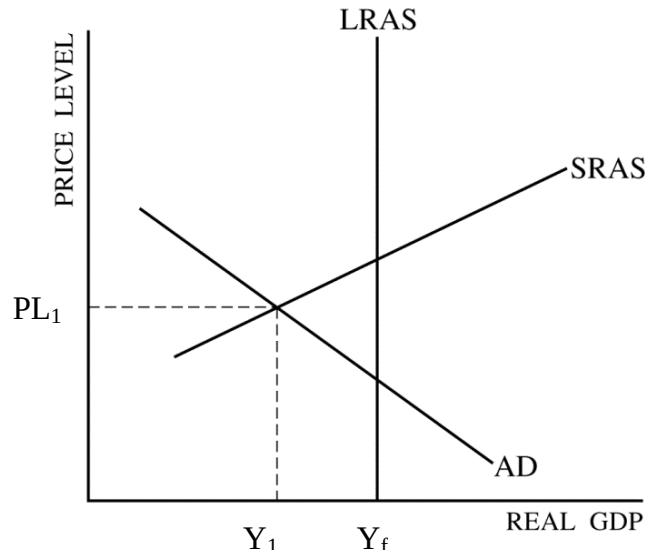
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2014 SCORING GUIDELINES

Question 1

11 Points (2+2+1+2+2+2)



2 points:

- One point is earned for drawing a correctly labeled graph showing an equilibrium with AD, SRAS, Y_1 , and PL_1 labeled.
- One point is earned for drawing a vertical LRAS curve at Y_f to the right of the intersection of AD and SRAS.

2 points:

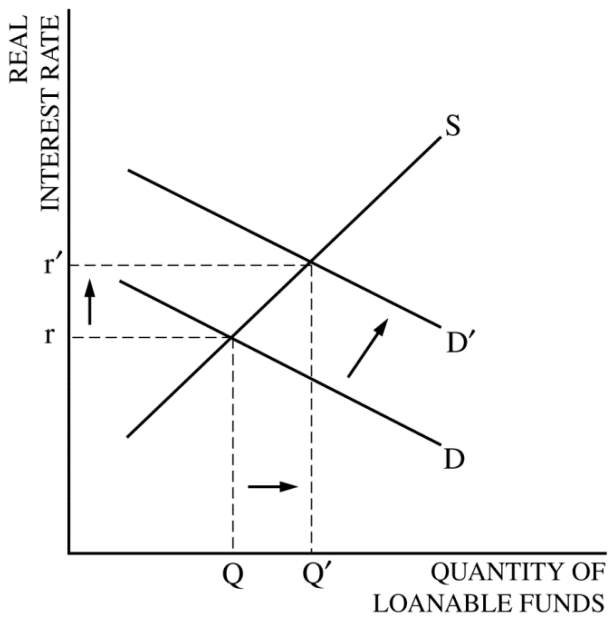
- One point is earned for stating that cyclical unemployment will decrease.
- One point is earned for stating that the natural rate of unemployment will not change.

1 point:

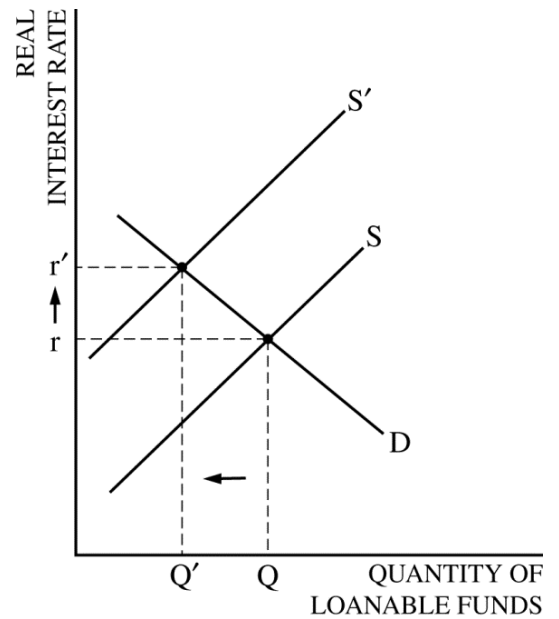
- One point is earned for calculating the maximum change in real GDP:
 $\text{Change in GDP} = (1/0.25) \times \$100 \text{ billion} = \$400 \text{ billion}.$

2014 SCORING GUIDELINES

Question 1 continued



OR



2 points:

- One point is earned for drawing a correctly labeled loanable funds market graph.
- One point is earned for shifting the demand curve to the right (or shifting the supply curve to the left) and showing an increase in the real interest rate.

2 points:

- One point is earned for stating that the economic growth rate will fall.
- One point is earned for explaining that the higher real interest rate will slow down capital formation.

2 points:

- One point is earned for stating that real gross domestic product will increase.
- One point is earned for explaining that the expansionary effect of the increase in government spending outweighs the contractionary effect of the increase in taxes of the same size. (Or students may explain by calculating the net increase in GDP, \$100 billion, or stating the tax multiplier is smaller than the spending multiplier.)

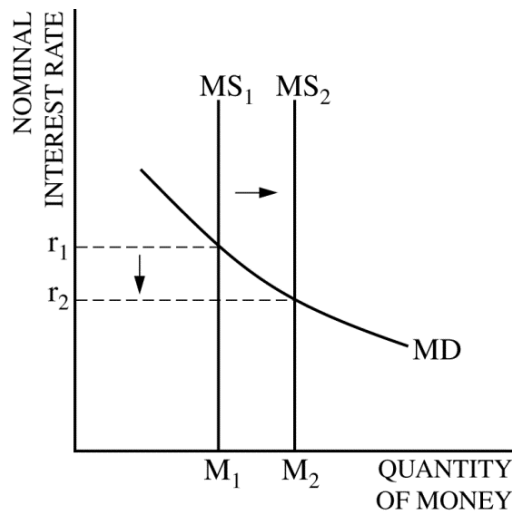
2014 SCORING GUIDELINES

Question 2

6 points (2+2+1+1)

2 points:

- One point is earned for stating that the Federal Reserve will buy government bonds.
- One point is earned for stating that the price of government bonds will increase.



2 points:

- One point is earned for drawing a correctly labeled graph of the money market.
- One point is earned for shifting the money supply curve to the right and showing a decrease in the nominal interest rate.

1 point:

- One point is earned for stating that the Federal Reserve purchase will not initially affect commercial banks' required reserves.

1 point:

- One point is earned for defining the discount rate as the interest rate that the Federal Reserve charges banks for borrowing from its discount window.

2014 SCORING GUIDELINES

Question 3

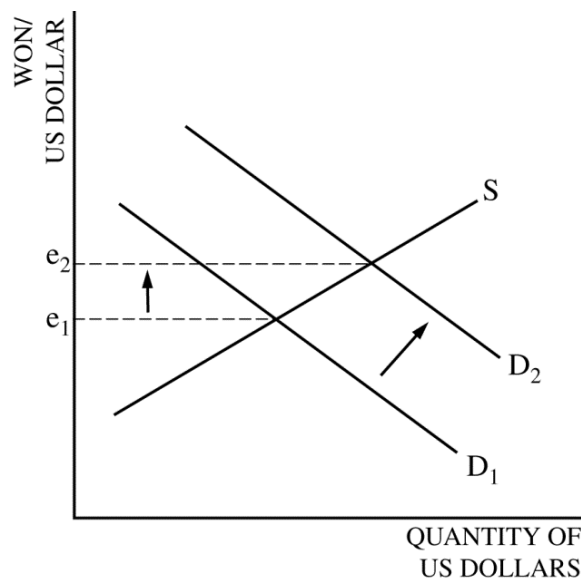
5 points (1+2+2)

1 point:

- One point is earned for stating that United States exports to South Korea will increase.

2 points:

- One point is earned for stating that the United States current account will be in surplus.
- One point is earned for stating that the United States gross domestic product will increase and explaining that higher U.S. exports increase AD (or that production increases to meet the increased export demand from South Korea).



2 points:

- One point is earned for drawing a correctly labeled graph of the foreign exchange market for the U.S. dollar.
- One point is earned for shifting the demand curve for the dollar to the right (and/or shifting the supply curve to the left) and showing an increase in the won price per dollar.