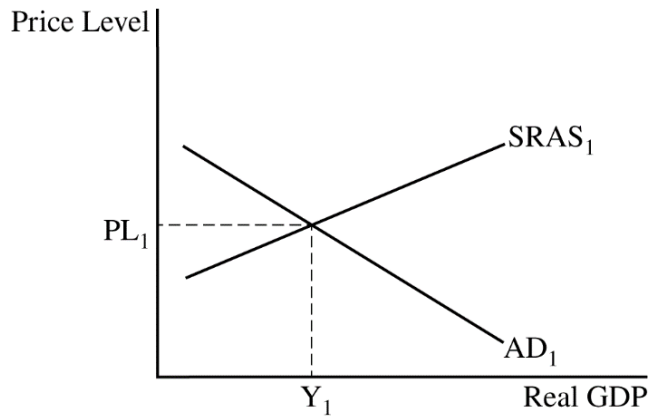


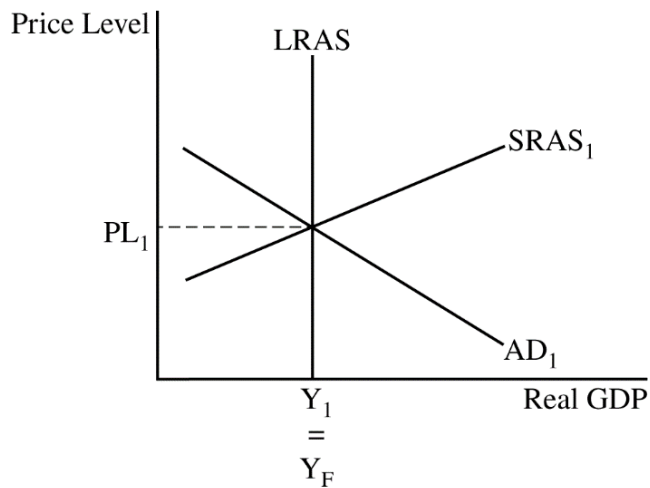
Question 3: Short

5 points

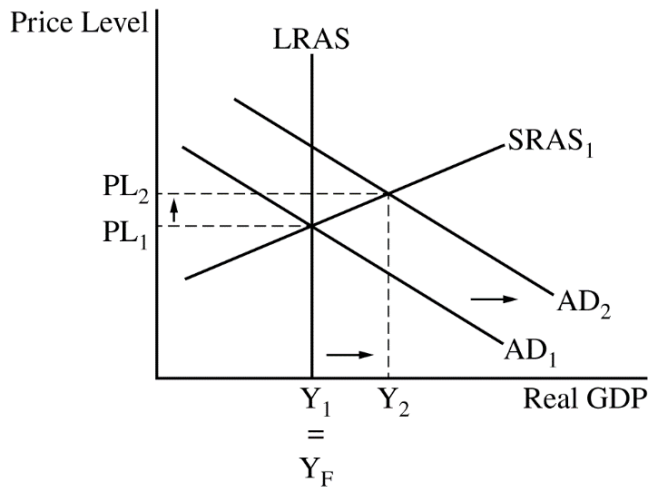
- A** Draw a correctly labeled aggregate demand–aggregate supply graph that shows PL_1 and Y_1 at the intersection of the aggregate demand (AD) and short-run aggregate supply (SRAS) curves. **1 point**
- Point 1



- Point 2 The graph must show a vertical long-run aggregate supply (LRAS) curve at equilibrium real output $Y_1 = Y_F$. **1 point**



- B** On the graph from part A, show the short-run effect of the increase in real income in Thailand as a rightward shift of Nepal's 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**
- Point 3



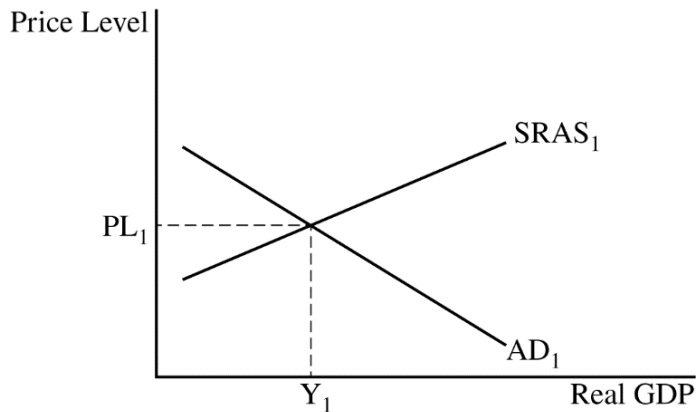
- C** Calculate the minimum change in government spending as a decrease of 100 million rupees and show your work. **1 point**
- Point 4

$$\text{Min Change} = \frac{-400 \text{ million rupees}}{\frac{1}{(1 - 0.75)}} = \frac{-400 \text{ million rupees}}{4} = -100 \text{ million rupees}$$

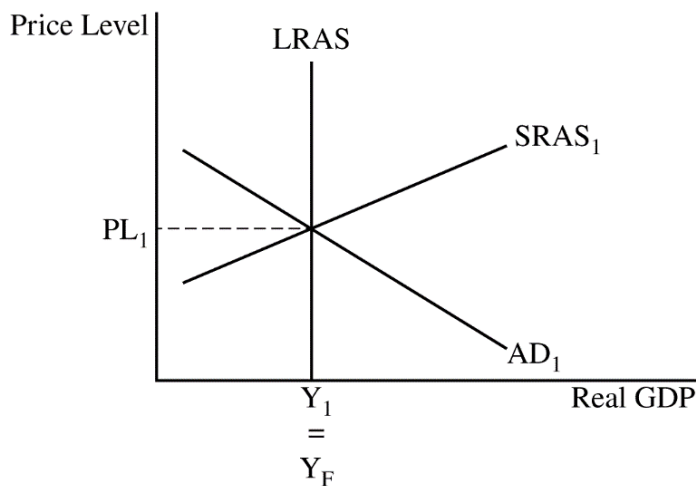
- D** Explain that as real income rises, tax revenues will increase automatically (and/or transfer payments will decrease automatically), thereby slowing the rate at which disposable income is increasing, which will slow consumption growth. **1 point**
- Point 5

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**



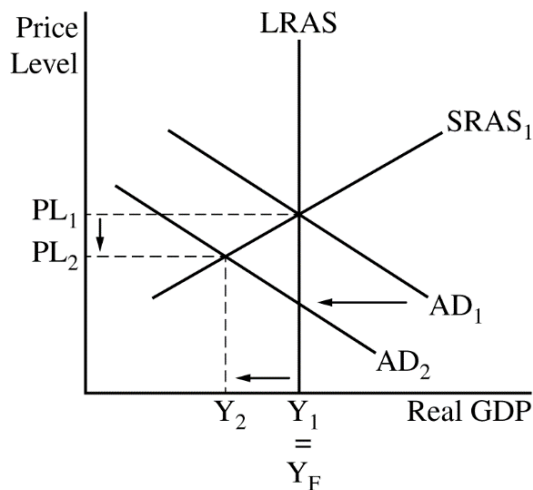
- For the second point, the graph must show a vertical long-run aggregate supply (LRAS) curve at equilibrium real output $Y_1 = Y_F$. **1 point**

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

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

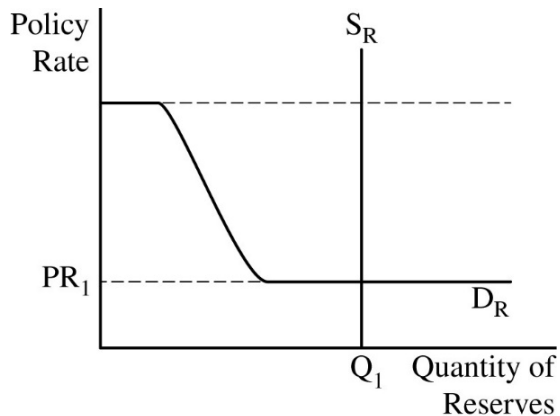
$$MPC = \frac{\Delta \text{Consumer Spending}}{\Delta \text{Disposable Income}} = \frac{\$100,000 - \$110,000}{\$110,000 - \$135,000} = \frac{-\$10,000}{-\$25,000} = 0.4$$

- (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

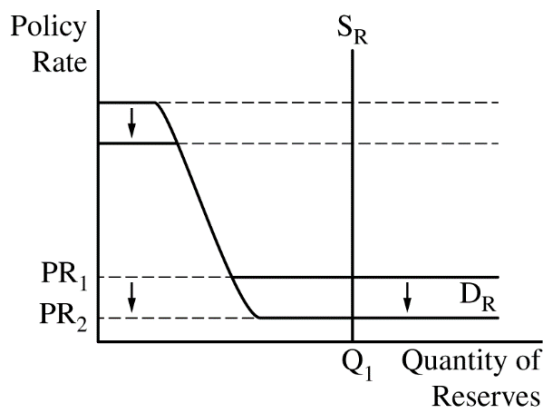


Total for part (b) 2 points

- (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

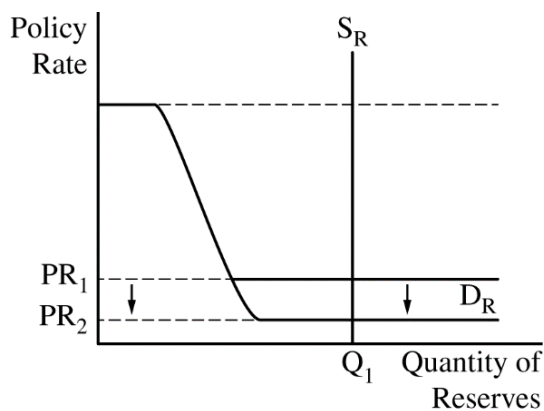


For the second point, the graph must show a decrease in the administered interest rates, resulting in a decrease in the policy rate. **1 point**



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**

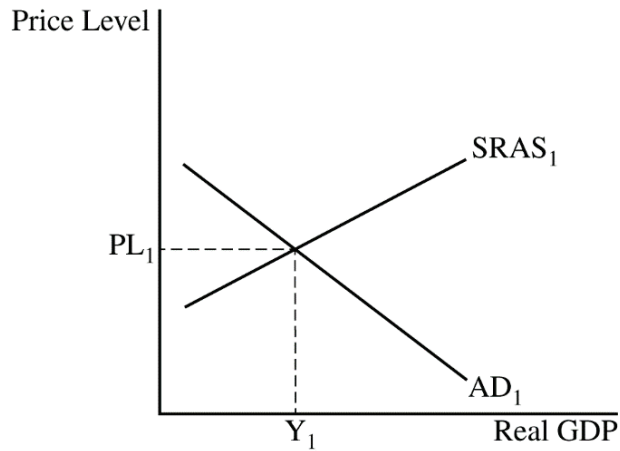
For the second point, explain that the decrease in nominal interest rates will increase interest-sensitive spending (consumption, investment, or net exports), causing an increase in aggregate demand and real output. **1 point**

Total for part (f) 2 points

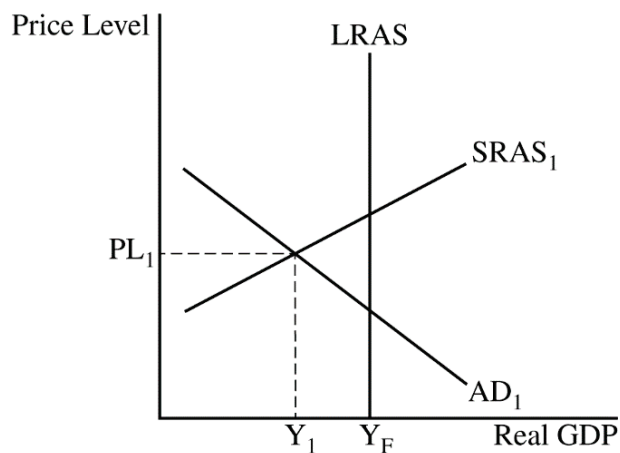
Total for question 1 10 points

Question 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 as Y_F . **1 point**

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

- (b)(i) 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**

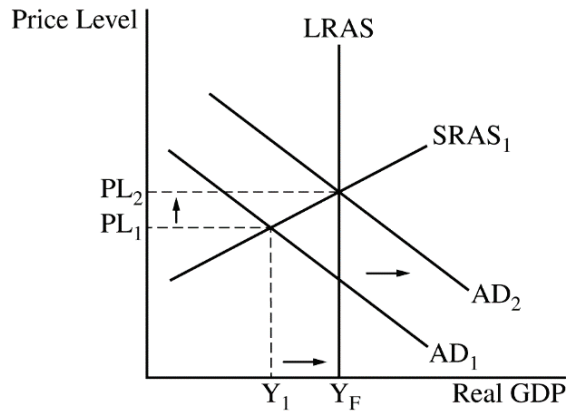
- (ii) State that the price level will be less than PL_1 . **1 point**

Total for part (b) 2 points

- (c) (i) Calculate the minimum change in government spending as an increase of \$10 million and show your work. **1 point**

$$\text{Minimum Change} = \frac{\text{Output Gap}}{\text{Spending Multiplier}} = \frac{\$50 \text{ million}}{\left(\frac{1}{0.2}\right)} = \frac{\$50 \text{ million}}{5} \\ = \$10 \text{ million}$$

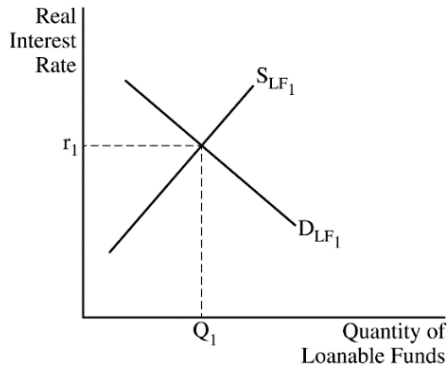
- (ii) On the graph from part (a), show the short-run effect of the change in government spending as a rightward shift of the aggregate demand curve where the new short-run equilibrium intersects the long-run aggregate supply curve at a higher equilibrium price level, labeled PL₂. **1 point**



Total for part (c) 2 points

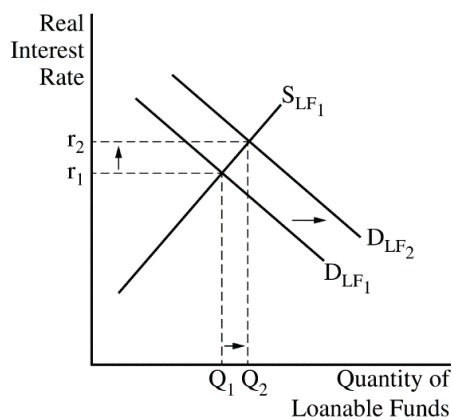
(d) Draw a correctly labeled graph of the loanable funds market.

1 point

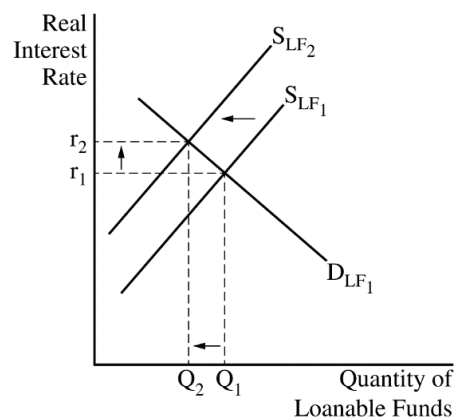


For the second point, the graph must show an increase in the demand for loanable funds (or a decrease in the supply of loanable funds), resulting in an increase in the equilibrium real interest rate.

1 point



OR



Total for part (d) 2 points

(e)(i) State that the price of previously issued bonds will decrease.

1 point

(ii) State that the rate of economic growth in the long run will decrease and explain that an increase in the real interest rate means the cost of borrowing has increased, which will decrease investment spending on physical capital, human capital, and/or research and development.

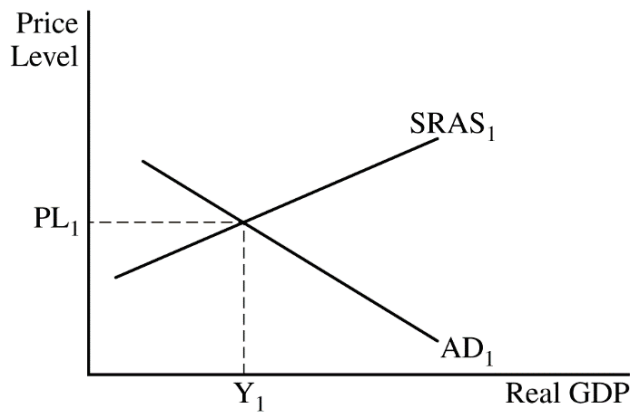
1 point

Total for part (e) 2 points

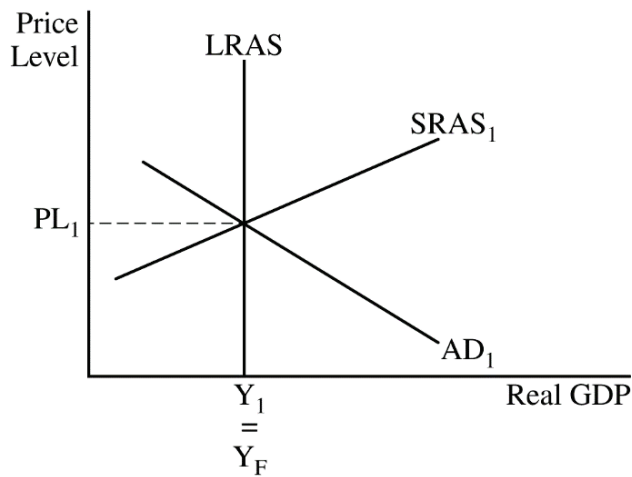
Total for question 1 10 points

Question 3: Short**5 points**

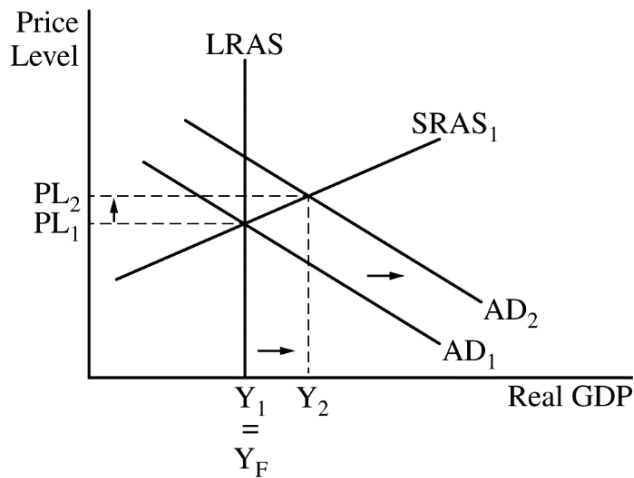
- (a) Draw a correctly labeled aggregate demand–aggregate supply graph that shows PL_1 and Y_1 at the intersection of aggregate demand and short-run aggregate supply. **1 point**



- 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**



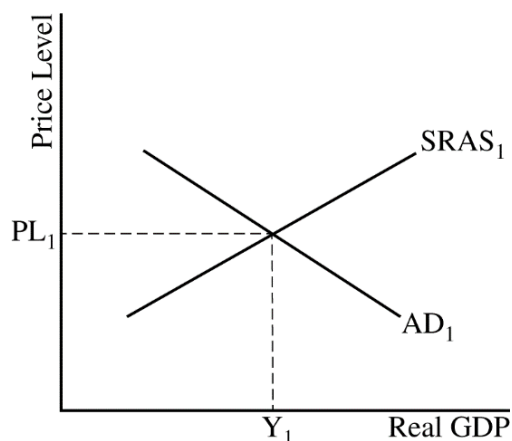
- (c) State that the central bank would increase its administered interest rates or increase interest on reserves. **1 point**
- (d) State that real output will decrease and explain that the increase in interest rates will decrease interest-sensitive spending (consumption, investment, or net exports),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

Total for question 3 5 points

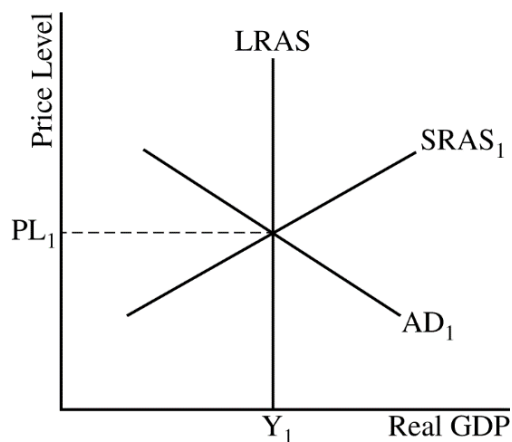
Question 1: Long**10 points**

(a) State that the Swedish capital and financial account is in deficit and explain that the current account is in surplus and the sum of the current account and the capital and financial account must equal zero ($CA + CFA = 0$). **1 point**

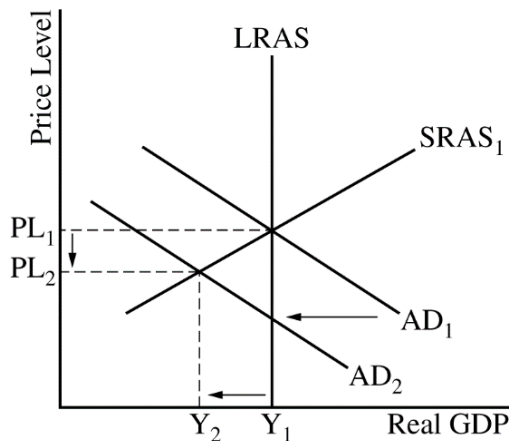
(b) Draw a correctly labeled aggregate demand–aggregate supply graph that shows PL_1 and Y_1 at the intersection of AD and SRAS. **1 point**



For the second point, the graph must show a vertical LRAS curve at equilibrium real output Y_1 . **1 point**

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

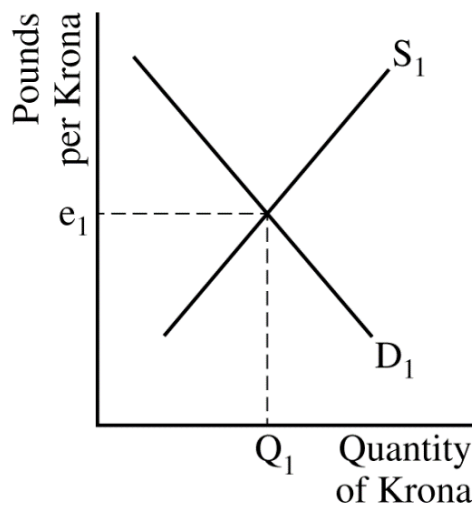
- (c) On the graph from part (b), show the impact of the decrease in imports with a leftward shift of the AD curve, a decrease in real output to Y_2 , and a decrease in the price level to PL_2 . **1 point**



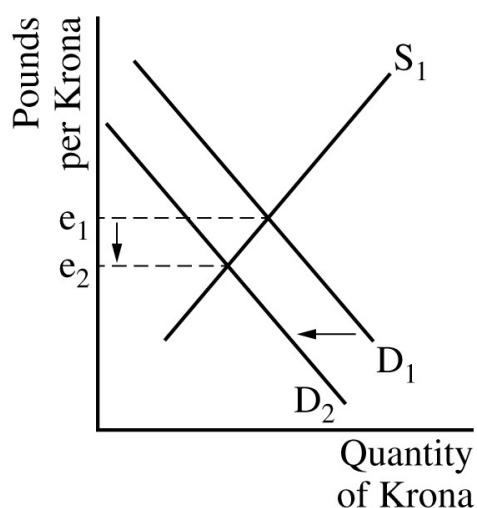
- (d) State that policymakers would be more concerned about cyclical unemployment than inflationary pressures and explain that the decline in exports to the United Kingdom lowered real output below full employment, resulting in unemployment above the natural rate of unemployment. **1 point**

- (e) State that the Swedish central bank should buy bonds. **1 point**

- (f) Draw a correctly labeled graph of the foreign exchange market for the krona. **1 point**



For the second point, the graph must show a leftward shift of the demand curve for the krona, resulting in a decrease in the value of the krona. **1 point**



Total for part (f) 2 points

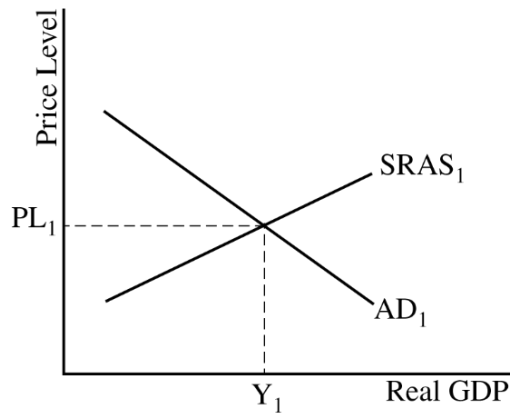
(g) State that Sweden's central bank should sell bonds. **1 point**

(h) Explain that selling bonds would decrease the money supply and increase interest rates in Sweden, which would increase financial capital inflows into Sweden and increase the demand for the krona, thereby leading to an appreciation of the krona. **1 point**

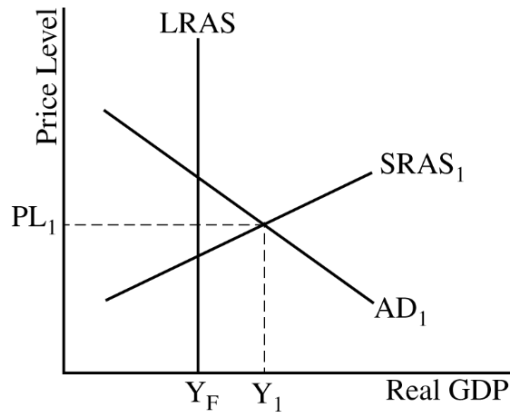
Total for question 1 10 points

Question 1: Long**10 points**

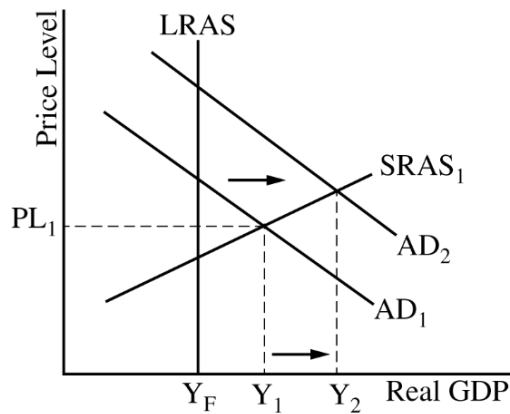
- (a) Draw a correctly labeled aggregate demand–aggregate supply graph that shows PL_1 and Y_1 at the intersection of AD and SRAS. **1 point**



- For the second point, the graph must show a vertical LRAS curve to the left of Y_1 and label the full employment output Y_F . **1 point**

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

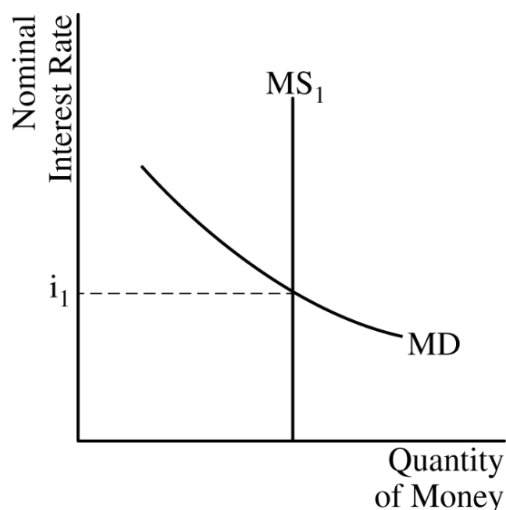
- (b) On the graph from part (a), show the impact of the government's action with a rightward shift of the AD curve and an increase in short-run equilibrium real output labeled Y_2 . **1 point**



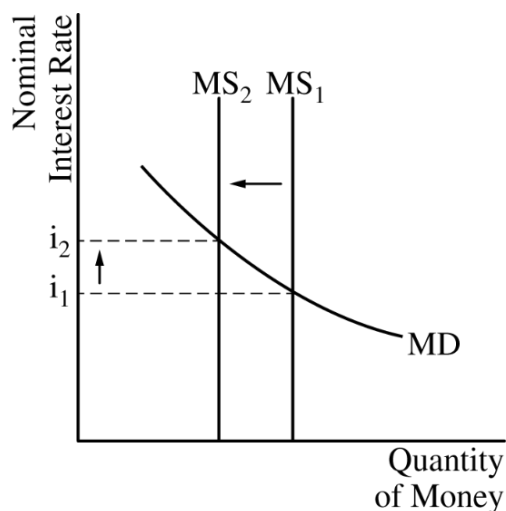
- | | | | |
|------------|-------------|--|----------------|
| (c) | (i) | State that the natural rate of unemployment will not change. | 1 point |
| | (ii) | State that nominal interest rates will increase and explain that this is because the increase in real output will increase the demand for money. | 1 point |

Total for part (c) 2 points

- | | | |
|------------|---|----------------|
| (d) | State that the central bank should sell bonds. | 1 point |
| (e) | Draw a correctly labeled graph of the money market. | 1 point |



- | | |
|--|----------------|
| For the second point, the graph must show a leftward shift in the money supply curve, resulting in a higher nominal interest rate. | 1 point |
|--|----------------|



Total for part (e) 2 points

- | | | |
|------------|---|----------------|
| (f) | State that Smithland's currency will appreciate and explain that this is because there will be financial capital inflows as foreign investors seek higher returns in Smithland, which will increase the demand for Smithland's currency or decrease the supply of Smithland's currency. | 1 point |
|------------|---|----------------|

- (g) State that Smithland's imports will increase and explain that this is because the appreciation of Smithland's currency means that foreign goods will be relatively less expensive. **1 point**

Total for question 1 10 points

2018**AP** **CollegeBoard**

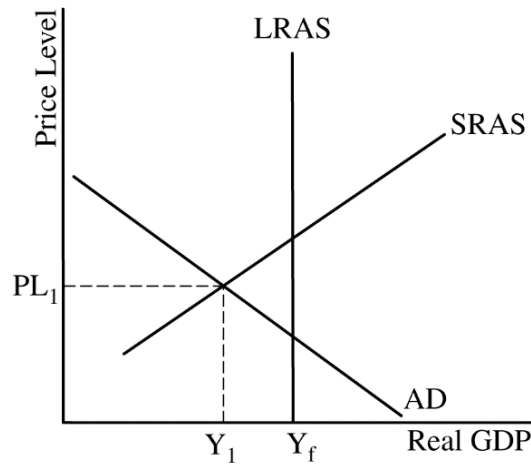
AP Macroeconomics

Scoring Guidelines

2018 SCORING GUIDELINES

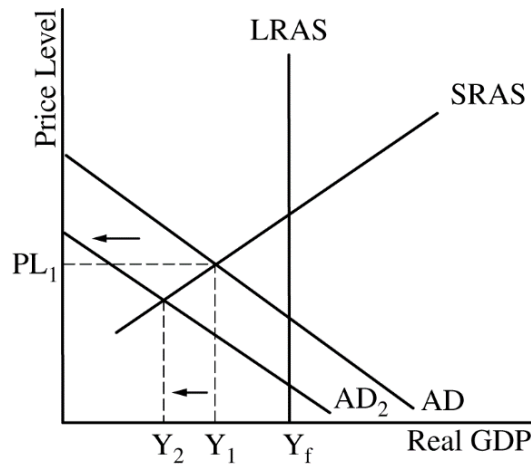
Question 1

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 .

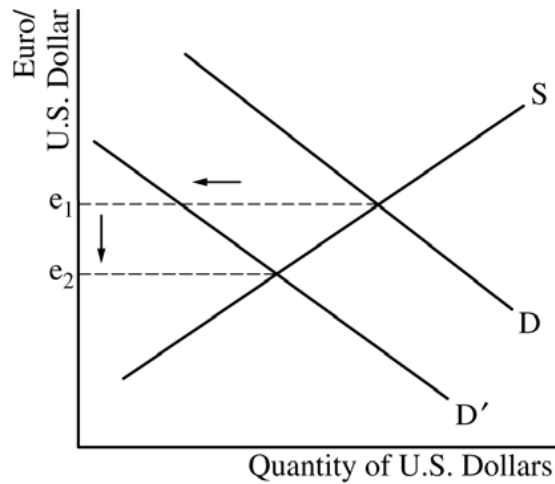


(b) 3 points:

- 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).

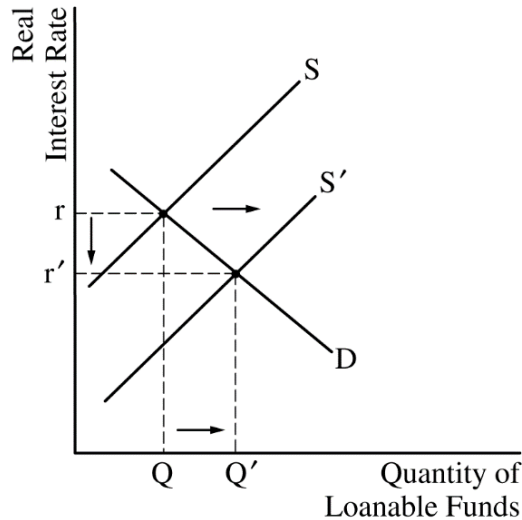
2018 SCORING GUIDELINES

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).

2018 SCORING GUIDELINES

Question 3

5 Points (1 + 1 + 1 + 2)

(a) 1 point:

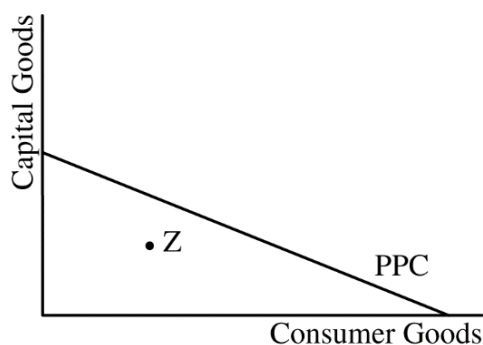
- One point is earned for stating that neither country has a comparative advantage in producing consumer goods and for explaining that the opportunity cost of producing 1 unit of consumer goods is the same for both countries (which is 1/2 a unit of capital goods).

(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 ($200,000/300,000 \times 100 = 66.67\%$).



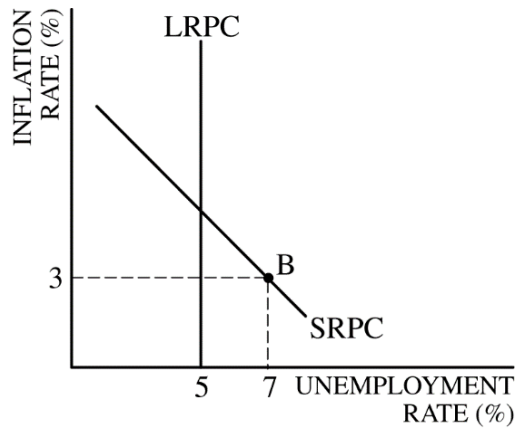
(d) 2 points:

- 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.

2017 SCORING GUIDELINES

Question 1

9 points (2 + 2 + 1 + 2 + 1 + 1)



(a) 2 points:

- One point is earned for drawing a correctly labeled graph of a downward-sloping short-run Phillips curve (SRPC).
- One point is earned for showing a correctly labeled vertical long-run Phillips curve (LRPC) at the natural rate of unemployment, 5%, and for showing point B on the SRPC to the right of LRPC at the actual unemployment rate, 7%, and the inflation rate, 3%.

(b) 2 points:

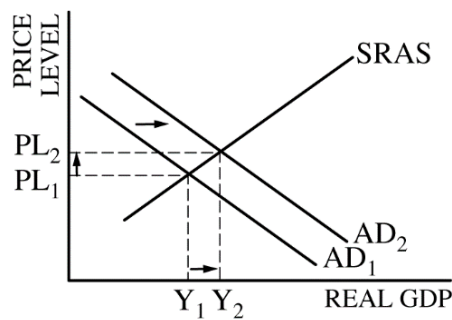
- One point is earned for stating that the short-run aggregate supply (SRAS) curve will shift to the right in the long run and for explaining that nominal wages will fall in response to high unemployment.
- One point is earned for stating that LRPC will remain unchanged.

(c) 1 point:

- One point is earned for stating that the government should either increase its expenditures (or purchases) or decrease taxes.

2017 SCORING GUIDELINES

Question 1 (continued)



(d) 2 points:

- One point is earned for drawing a correctly labeled graph showing a downward-sloping AD curve, upward-sloping SRAS curve, the equilibrium price level, and the equilibrium real GDP.
- One point is earned for showing a rightward shift of the AD curve and for showing an increase in both the price level and real GDP.

(e) 1 point:

- One point is earned for stating that the supply of country X's currency will increase and for explaining that spending on imports will increase as a result of the increase in real GDP.

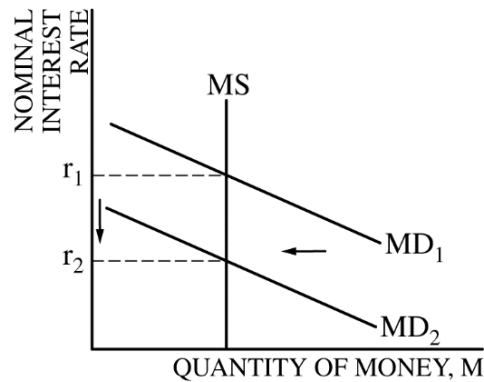
(f) 1 point:

- One point is earned for stating that country X's currency will depreciate.

2017 SCORING GUIDELINES

Question 2

6 points (2 + 2 + 1 + 1)



(a) 2 points:

- One point is earned for drawing a correctly labeled graph of the money market.
- One point is earned for showing a leftward shift in the money demand curve, resulting in a lower nominal interest rate.

(b) 2 points:

- One point is earned for stating that the price of previously issued bonds will increase.
- One point is earned for stating that both the price level and real income will increase and for explaining that the lower interest rate will increase consumption, investment, and/or net exports (interest-sensitive spending), which increases aggregate demand.

(c) 1 point:

- One point is earned for stating that the velocity of money will increase.

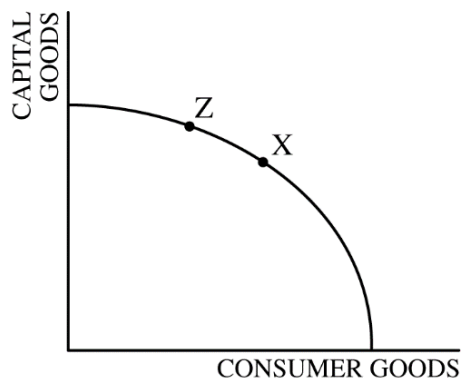
(d) 1 point:

- One point is earned for stating that the central bank would sell bonds.

2017 SCORING GUIDELINES

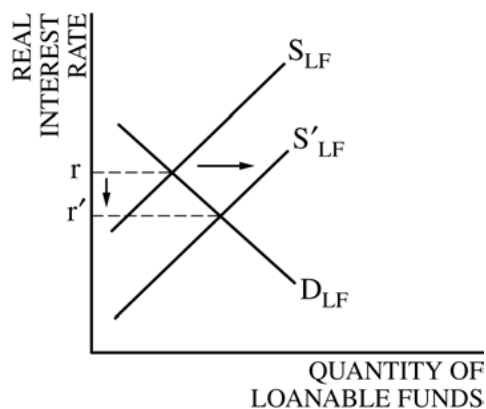
Question 3

5 points (1 + 2 + 1 + 1)



(a) 1 point:

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



(b) 2 points:

- One point is earned for drawing a correctly labeled graph of the loanable funds market.
- One point is earned for showing a rightward shift of the supply curve and a decrease in the real interest rate.

(c) 1 point:

- One point is earned for showing point Z to the left of point X on the curve.

(d) 1 point:

- One point is earned for stating that the long-run aggregate supply (LRAS) curve will shift to the right and for explaining that capital accumulation will increase.

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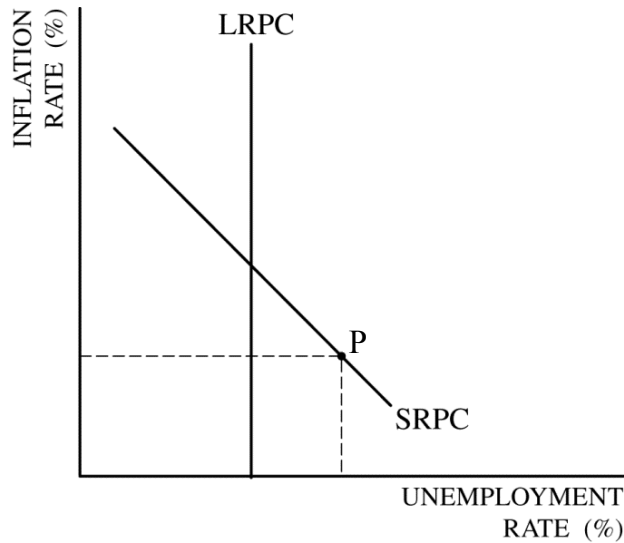
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AP Central is the official online home for the AP Program: apcentral.collegeboard.org.

2016 SCORING GUIDELINES

Question 1

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



(a) 2 points:

- One point is earned for drawing a correctly labeled graph showing a vertical LRPC and a downward sloping SRPC.
- One point is earned for showing point P on the SRPC to the right of LRPC.

(b) 1 point:

- One point is earned for stating that SRPC will shift to the left, and for explaining that producing at a level of output below full employment will create higher unemployment and lower inflationary expectations that will result in lower nominal wages and input costs.

(c) 1 point:

- One point is earned for stating that the Federal Reserve should buy bonds.

(d) 2 points:

- One point is earned for stating that the federal funds rate will decrease and for explaining that the money supply will increase, which will increase reserves and decrease the federal funds rate.
- One point is earned for stating that the real interest rate will decrease in the short run.

2016 SCORING GUIDELINES

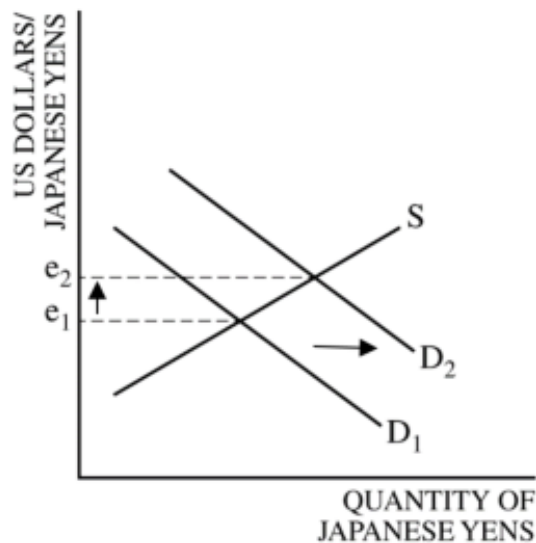
Question 1 (continued)

(e) 1 point:

- One point is earned for stating that real GDP will increase in the short run and for explaining that a decrease in the real interest rate will increase interest-sensitive spending, which includes consumption and investment in plant and equipment, resulting in an increase in aggregate demand.

(f) 1 point:

- One point is earned for stating that the demand for the Japanese yen will increase in the foreign exchange market.



(g) 2 points:

- One point is earned for drawing a correctly labeled graph of the foreign exchange market for the Japanese yen.
- One point is earned for showing a rightward shift of the demand curve for the yen and showing an increase in the dollar price of the yen (appreciating yen).

2016 SCORING GUIDELINES**Question 2****6 points** (1+1+2+1+1)

(a) 1 point:

- One point is earned for stating that new loans are zero because the bank has no excess reserves (or because the bank is already fully loaned up).

(b) 1 point:

- One point is earned for correctly calculating the maximum amount of new loans that First Superior Bank can make as \$90 ($= \$100 \times (1 - 0.10)$).

(c) 2 points:

- One point is earned for correctly calculating the maximum change over time in loans in the banking system as \$900 ($= \90×10).
- One point is earned for correctly calculating the maximum change over time in demand deposits in the banking system as \$1,000 ($= \100×10).

(d) 1 point:

- One point is earned for correctly calculating the maximum change over time in the money supply in the banking system as \$900 ($= \90×10).

(e) 1 point:

- One point is earned for stating that the money supply can be smaller than the maximum change identified when the public holds more money and /or banks hold more excess reserves.

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Question 3

5 points (1+1+2+1)

(a) 1 point:

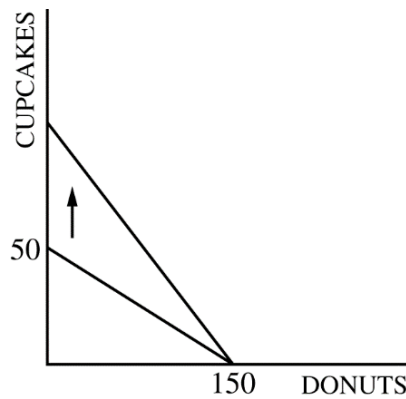
- One point is earned for stating that John has the absolute advantage in producing donuts and for explaining that John can produce more donuts than Erica in one day ($200 > 150$).

(b) 1 point:

- One point is earned for stating that Erica has a comparative advantage in producing donuts and for explaining that Erica's opportunity cost of producing one donut ($1/3$ of a cupcake) is less than John's opportunity cost of producing one donut ($1/2$ of a cupcake).

(c) 2 points:

- One point is earned for indicating that John will benefit from specialization and trade.
- One point is earned for indicating that Erica will not benefit from specialization and trade.



(d) 1 point:

- One point is earned for drawing a correctly labeled graph of Erica's production possibilities curve, before the technology change, and for rotating the production possibilities curve outward showing greater production of cupcakes after the technology change.