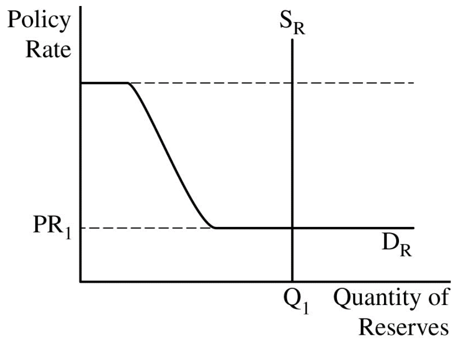
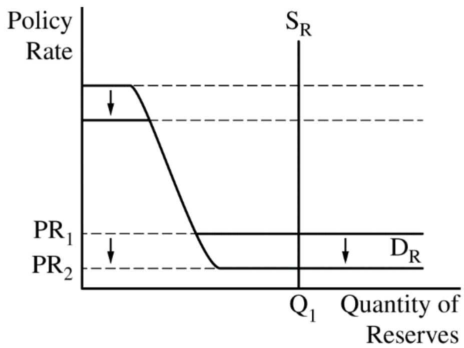
Question 2: Short — 5 points

A Point 1	State that the central bank of Country L would buy bonds.	**1 point**
B Point 2	State that the central bank of Country A would decrease its administered interest rates or decrease interest on reserves.	**1 point**
C Point 3	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**

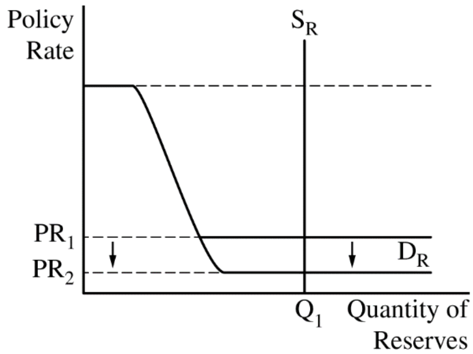


Point 4 — The graph must show a decrease in the administered interest rates, resulting in a decrease in the policy rate. — **1 point**



OR

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



D Point 5	State that short-run aggregate supply will increase until it reaches full employment and explain that the increase in short-run aggregate supply in the long run will be caused by a decrease in input prices (e.g., nominal wages) and/or inflationary expectations.	**1 point**

Question 2: Short — 5 points

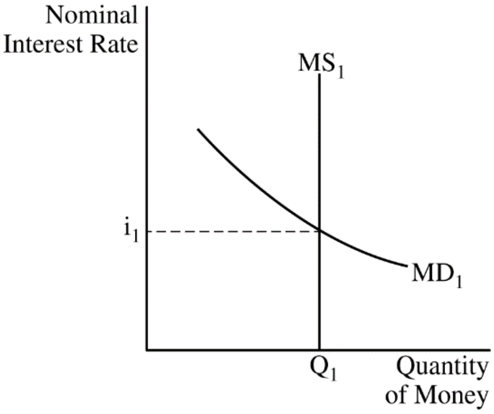
(a)	Calculate real GDP in Louland in year 2 as 900,000 and show your work. $$\text{Real GDP} = \frac{\text{Nominal GDP}}{\text{GDP Deflator}} \times 100 = \frac{1{,}035{,}000}{115} \times 100 = 900{,}000$$	**1 point**
(b)	State that the demand for money would increase and the nominal interest rate would increase.	**1 point**
(c)	State that the standard of living of the average citizen in Louland decreased from year 1 to year 2 and explain that the real GDP per capita in year 1 was 800 and the real GDP per capita in year 2 was 750.	**1 point**
(d)	State that the inflation rate from year 1 to year 2 was 15%.	**1 point**
(e)	State that real wages decreased and explain that nominal wages increased by less than the inflation rate (10% < 15%).	**1 point**
	Total for question 2	**5 points**

Question 2: Short — 5 points

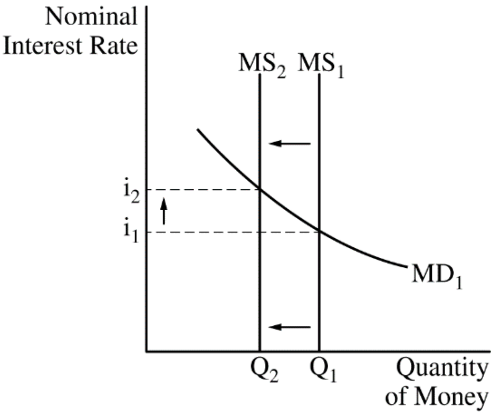
(a) Calculate the maximum change in the money supply as a decrease of $500,000 and show your work. **1 point**

$$\text{Change in MS} = \text{Bond Sale} \times \text{Money Multiplier} = -\$100{,}000 \times \frac{1}{0.2} = -\$500{,}000$$

(b) 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 (b) 2 points

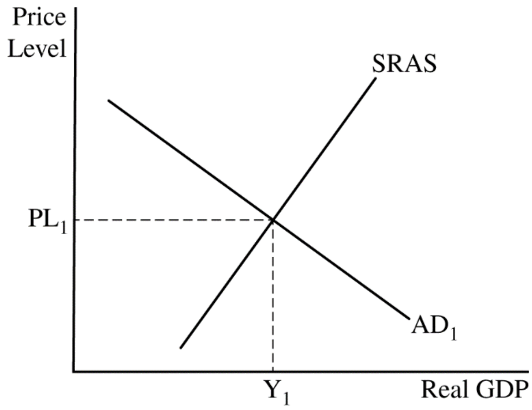
(c) State that nominal gross domestic product will decrease and explain that according to the quantity theory of money (MV=PY), a decrease in the money supply will decrease nominal gross domestic product for a given velocity. **1 point**

(d) State that the price level decreases. **1 point**

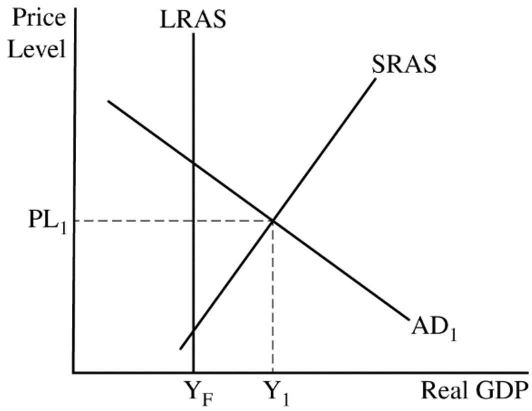
Total for question 2 5 points

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**

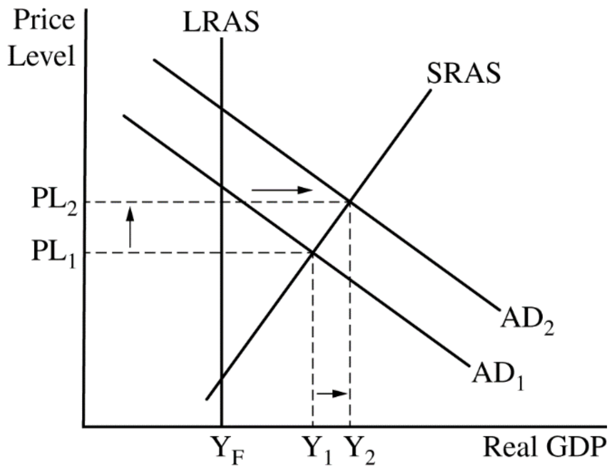


For the second point, the graph must show a vertical long-run aggregate supply curve to the left of Y_1 and label the full-employment output Y_F. **1 point**



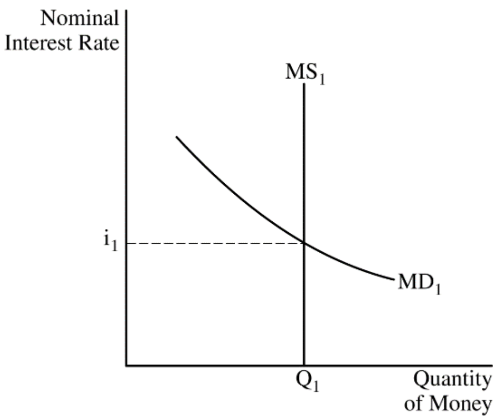
Total for part (a) 2 points

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

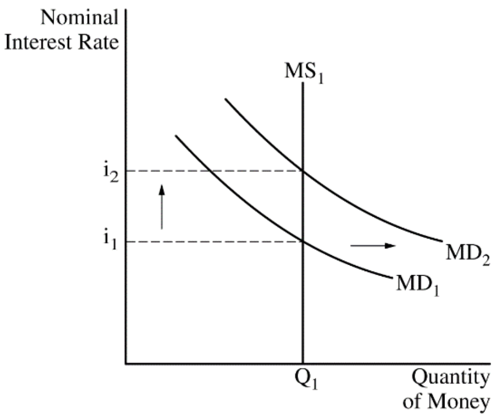


(c) State that the maximum increase in real output is $500 billion, and the maximum increase in household savings is $100 billion. **1 point**

(d)	Draw a correctly labeled graph of the money market.	**1 point**



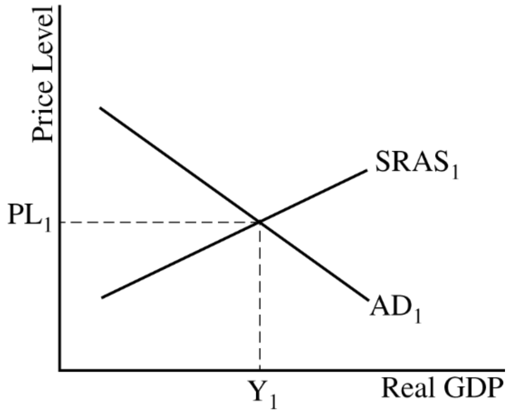
For the second point, the graph must show a rightward shift in the money demand curve, resulting in a higher nominal interest rate.	**1 point**



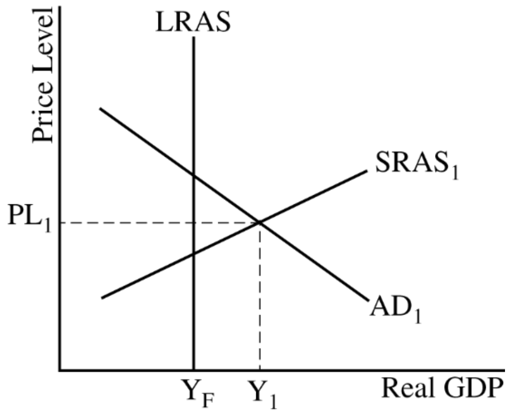
	Total for part (d)	**2 points**
(e)	State that the price of previously issued bonds will decrease.	**1 point**
(f) (i)	State that the demand for dollars will decrease and explain that United States goods are relatively more expensive than European goods as a result of the increase in the inflation rate in the United States.	**1 point**
(ii)	State that the dollar will depreciate.	**1 point**
	Total for part (f)	**2 points**
(g)	State that the Federal Reserve should sell the euro and buy the dollar.	**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**

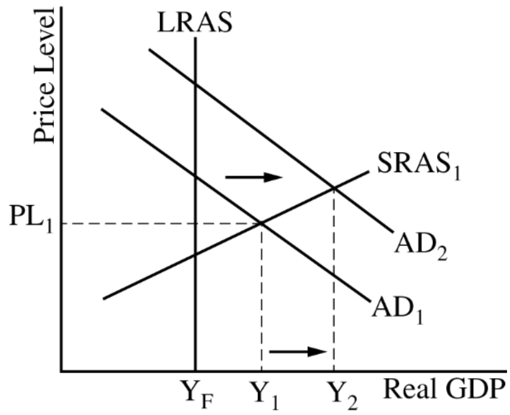


For the second point, the graph must show a vertical LRAS curve to the left of Y_1 and label the full employment output Y_F. **1 point**

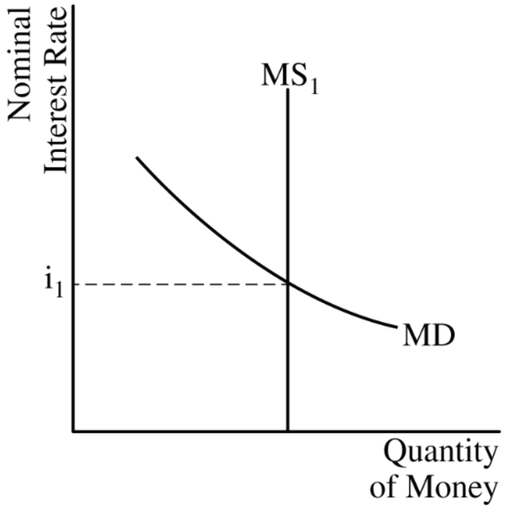


Total for part (a) — 2 points

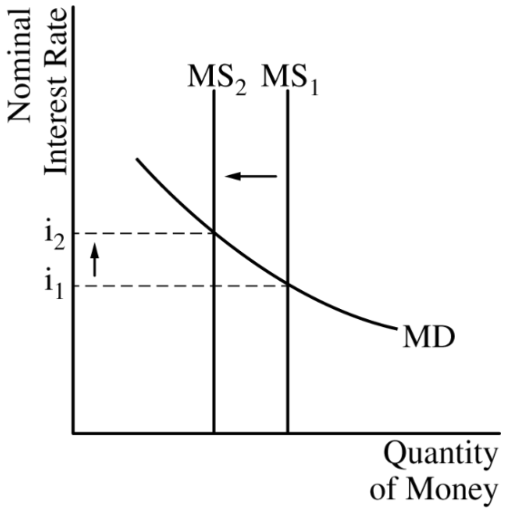
(b)	On the graph from part (a), show the impact of the government's action with a rightward shift of the AD curve and an increase in short-run equilibrium real output labeled Y_2.	**1 point**



(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**

2019

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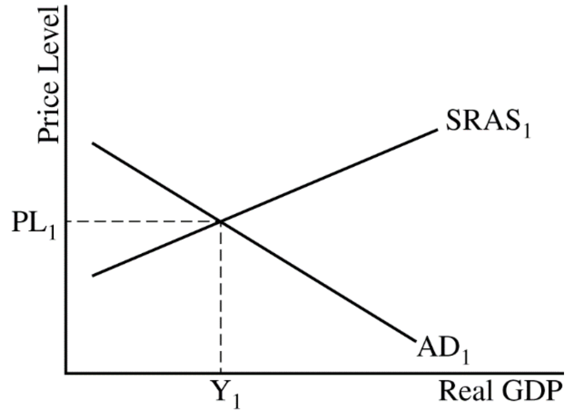
Scoring Guidelines
Set 1

2019 SCORING GUIDELINES

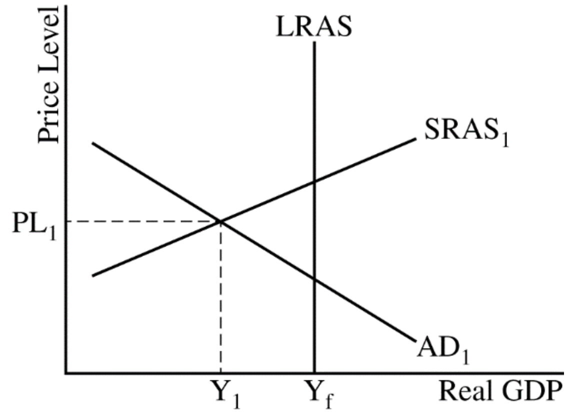
Question 1

10 Points (2 + 2 + 2 + 2 + 2)

(a) 2 points



- One point is earned for drawing a correctly labeled graph showing a downward sloping aggregate demand (AD) curve, an upward sloping short-run aggregate supply (SRAS) curve, the equilibrium output level labeled Y_1, and the equilibrium price level labeled PL_1.



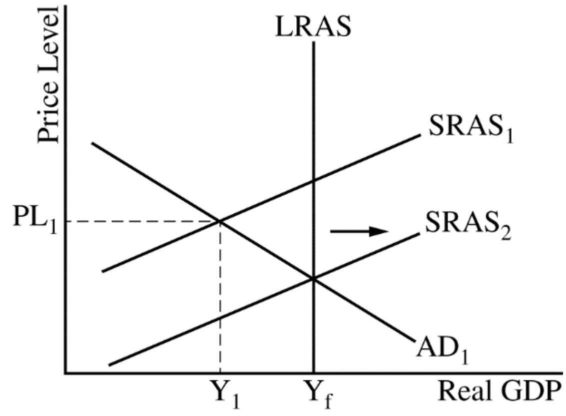
- One point is earned for drawing a correctly labeled vertical long-run aggregate supply (LRAS) curve with full employment output labeled Y_f to the right of the short-run equilibrium output level, Y_1.

(b) 2 points

- One point is earned for explaining that nominal wages, input prices, or expected inflation will decrease, causing the SRAS curve to shift to the right until real GDP reaches full employment at Y_f.

2019 SCORING GUIDELINES

Question 1 (continued)



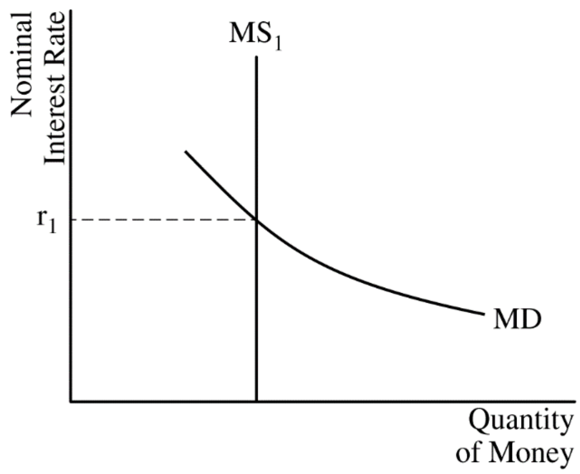
- One point is earned for showing a rightward shift in the SRAS curve intersecting the AD curve and LRAS curve at Y_f.

(c) 2 points

- One point is earned for correctly calculating the minimum change in government spending required to change aggregate demand by the amount of the output gap as an increase of \$8 billion $\left(= \frac{\$40 \text{ billion}}{5}\right)$.

- One point is earned for correctly calculating the minimum change in taxes required to change aggregate demand by the amount of the output gap as a decrease of \$10 billion $\left(= \frac{\$40 \text{ billion}}{-4}\right)$.

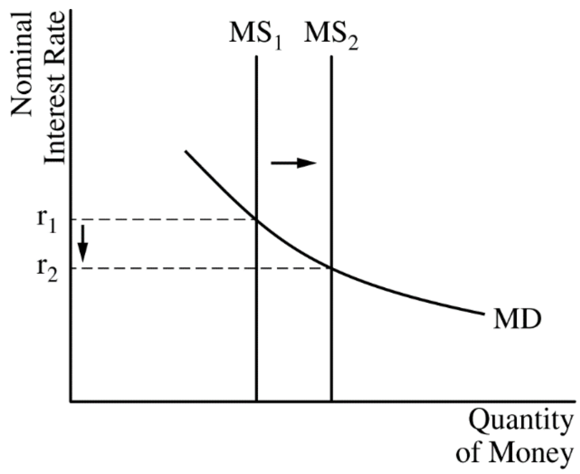
(d) 2 points



- One point is earned for drawing a correctly labeled graph of the money market.

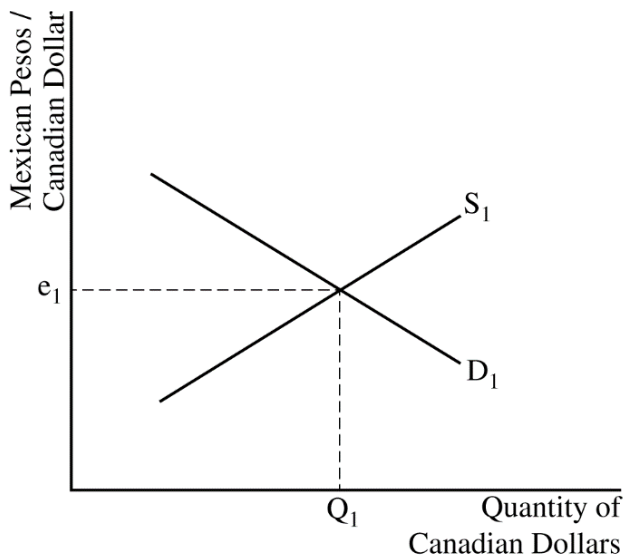
2019 SCORING GUIDELINES

Question 1 (continued)



- One point is earned for showing a rightward shift in the money supply curve, resulting in a lower nominal interest rate.

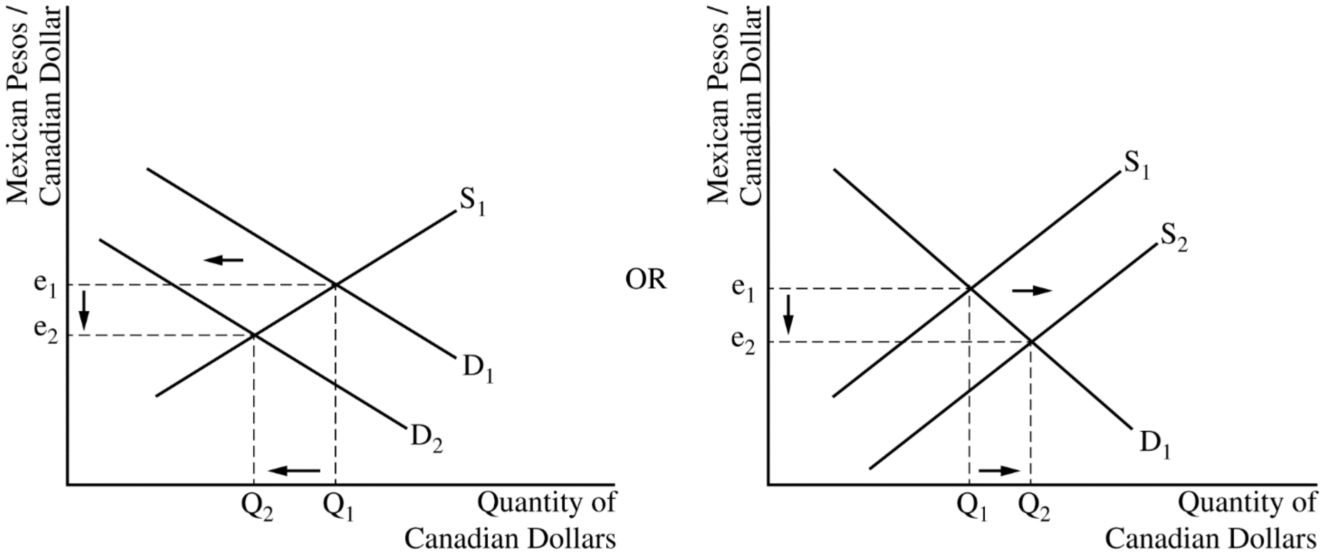
(e) 2 points



- One point is earned for drawing a correctly labeled graph of the foreign exchange market for the Canadian dollar.

2019 SCORING GUIDELINES

Question 1 (continued)



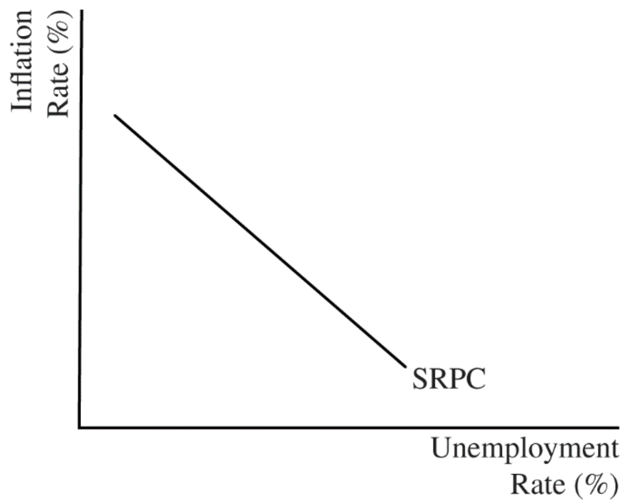
- One point is earned for showing a leftward shift of the demand curve for Canadian dollars (or a rightward shift of the supply curve of Canadian dollars) and for showing that the Canadian dollar will depreciate against the Mexican peso.

2019 SCORING GUIDELINES

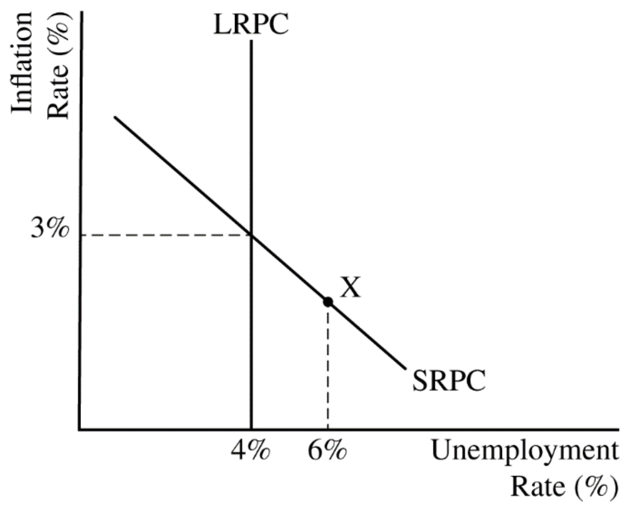
Question 2

5 Points (2 + 1 + 1 + 1)

(a) 2 points



- One point is earned for drawing a correctly labeled graph showing the short-run Phillips curve (SRPC).



- One point is earned for drawing the long-run Phillips curve (LRPC) showing the short-run equilibrium, labeled as point X, on the SRPC to the right of the LRPC, and for plotting the numbers in the correct places on the graph.

(b) 1 point

- One point is earned for stating that the actual inflation rate is less than the expected inflation rate.

2019 SCORING GUIDELINES

Question 2 (continued)

(c) 1 point

- One point is earned for stating that lenders will be better off and for explaining the real value of the loans that will be repaid will be higher than expected **OR** for explaining the relationship between the nominal and the real interest rates using the Fisher equation.

(d) 1 point

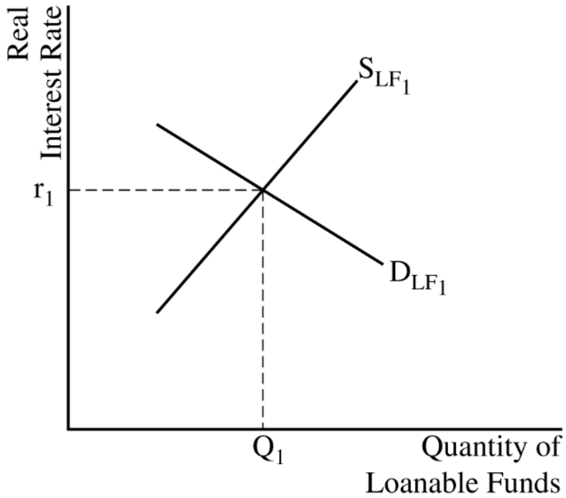
- One point is earned for stating that the natural rate of unemployment will not change in the long run.

2019 SCORING GUIDELINES

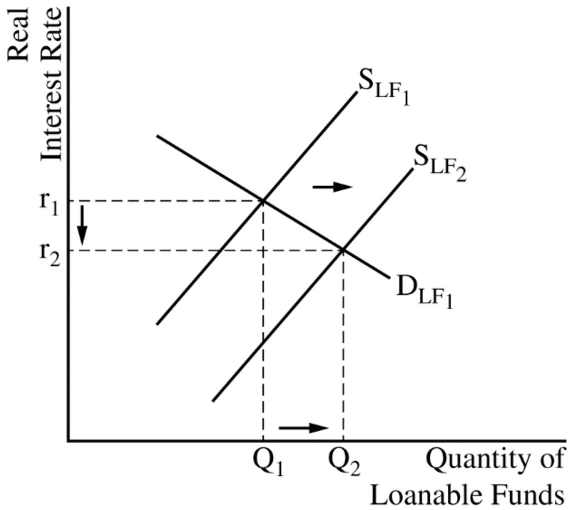
Question 3

5 Points (2 + 1 + 2)

(a) 2 points



- One point is earned for drawing a correctly labeled graph of the loanable funds market and identifying the equilibrium real interest rate and quantity of loanable funds.



- One point is earned for showing a rightward shift of the supply curve for loanable funds and for showing a lower equilibrium real interest rate.

(b) 1 point

- One point is earned for stating that Econland's purchases of foreign assets will increase and for explaining that Econland's investors will seek higher returns in other countries, which increases Econland's demand for foreign assets.

2019 SCORING GUIDELINES

Question 3 (continued)

(c) 2 points

- One point is earned for stating that Econland's currency will depreciate.
- One point is earned for stating that Econland's central bank would buy its currency in the foreign exchange market.

2017

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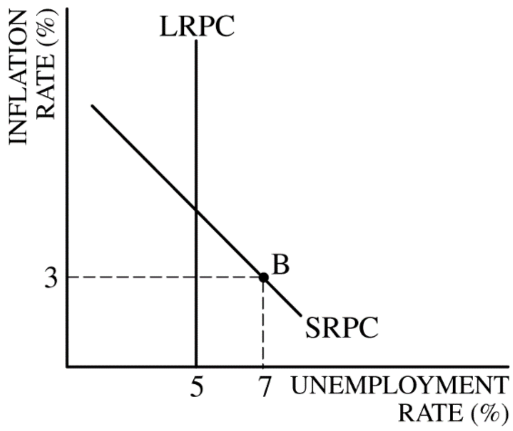
AP Macroeconomics

Scoring Guidelines

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:

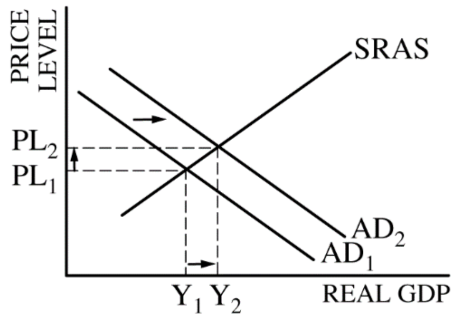
- One point is earned for stating that the short-run aggregate supply (SRAS) curve will shift to the right in the long run and for explaining that nominal wages will fall in response to high unemployment.
- One point is earned for stating that LRPC will remain unchanged.

(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.

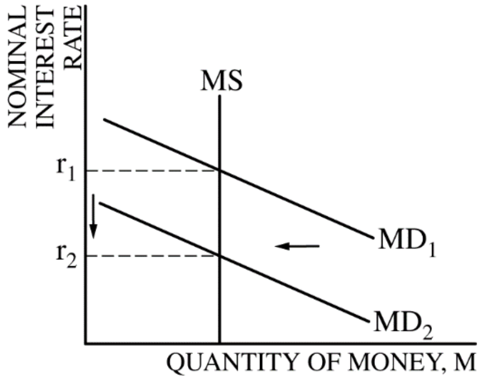
(f) 1 point:

- 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.

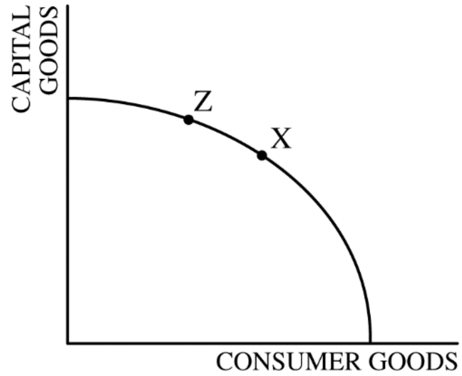
(d) 1 point:

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

2017 SCORING GUIDELINES

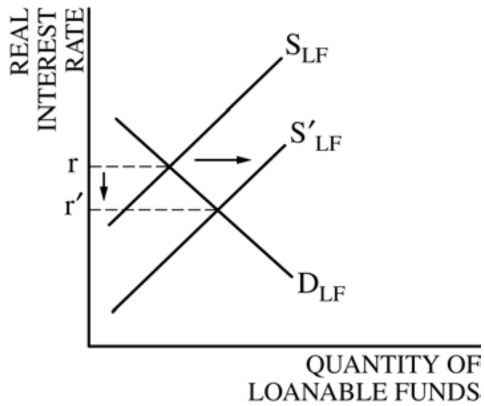
Question 3

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:

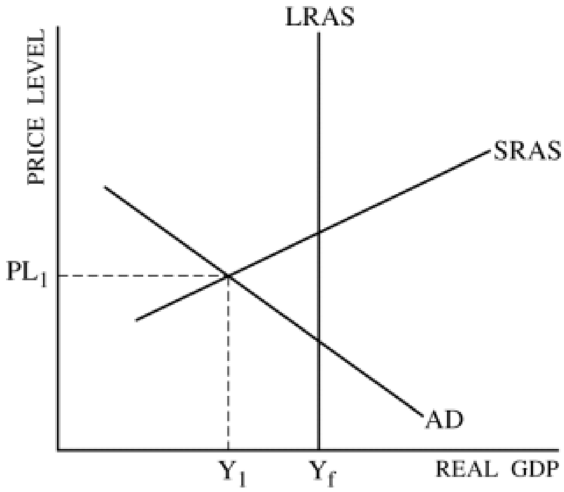
- One point is earned for stating that the long-run aggregate supply (LRAS) curve will shift to the right and for explaining that capital accumulation will increase.

AP® Macroeconomics 2015 Scoring Guidelines

2015 SCORING GUIDELINES

Question 1

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

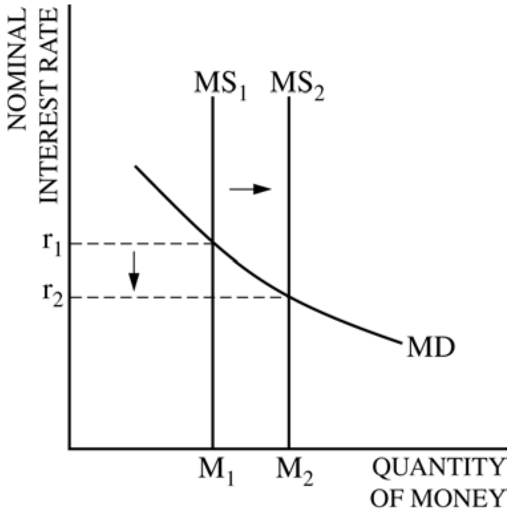


(a) 2 points:

- 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.

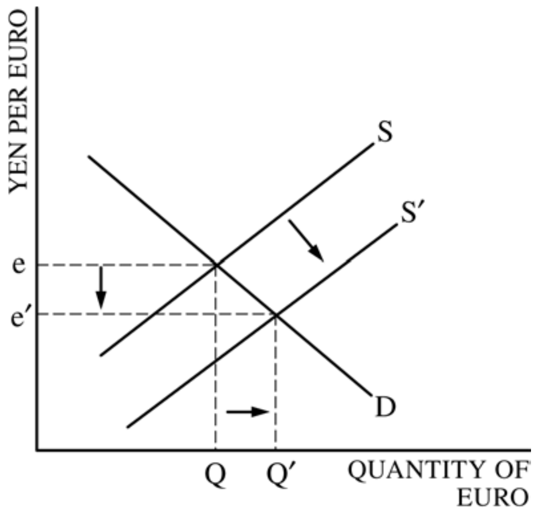
2015 SCORING GUIDELINES

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:

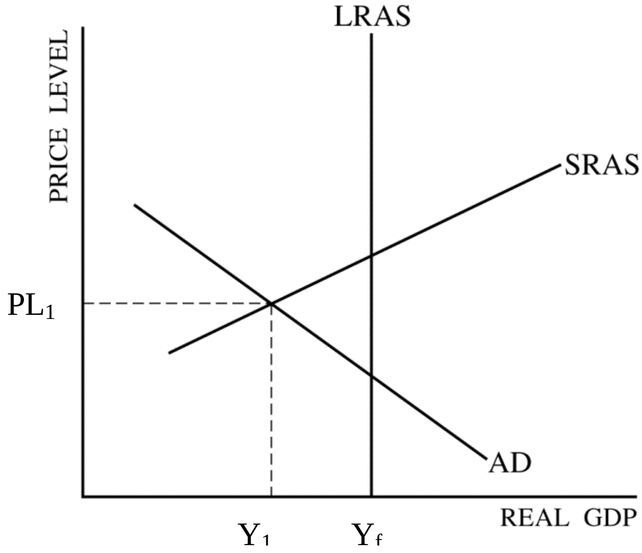
- One point is earned for stating that European Central Bank should buy euros.

AP® Macroeconomics
2014 Scoring Guidelines

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:

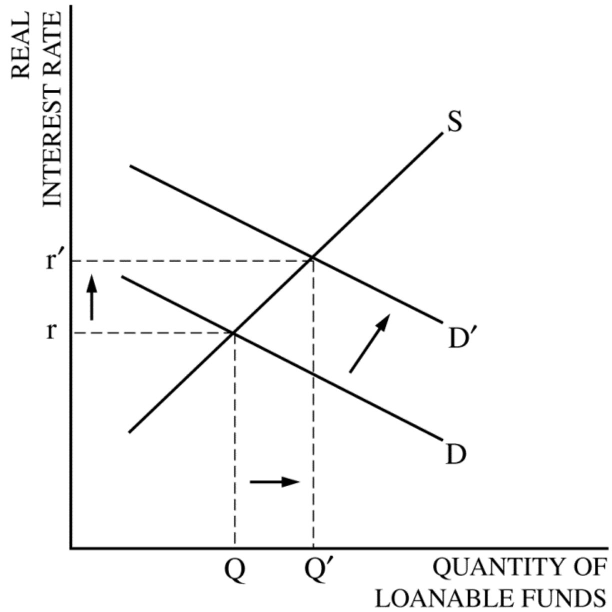
- One point is earned for stating that cyclical unemployment will decrease.
- One point is earned for stating that the natural rate of unemployment will not change.

1 point:

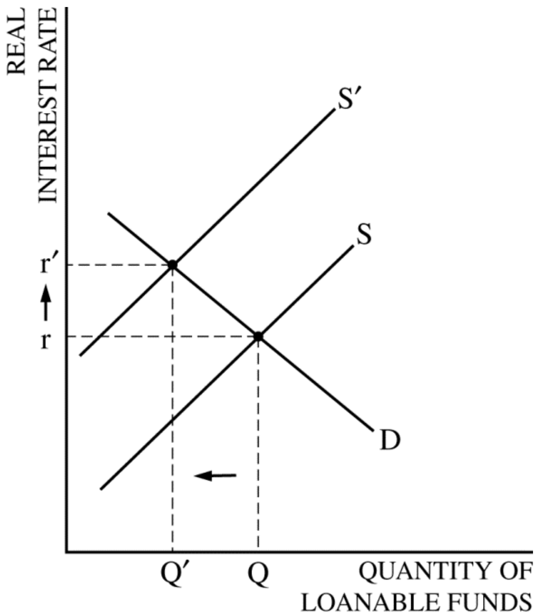
- One point is earned for calculating the maximum change in real GDP:
  Change in GDP = (1/0.25) X \$100 billion = \$400 billion.

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.)

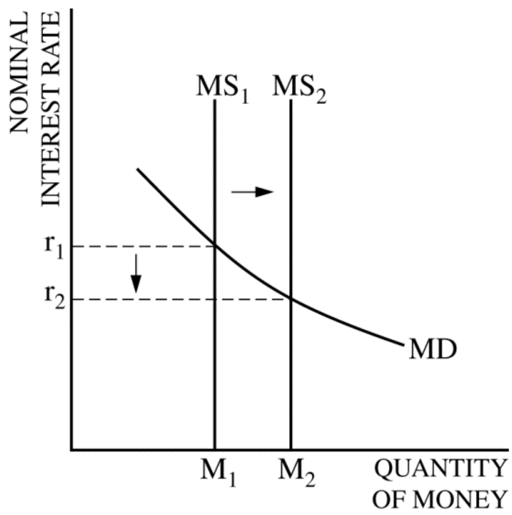
2014 SCORING GUIDELINES

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

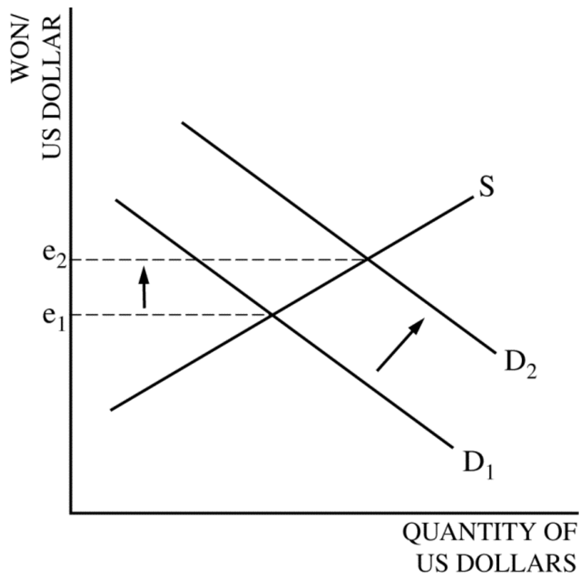
5 points (1+2+2)

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.