

2. Assume that commercial banks must hold a minimum of 20% of their deposits as reserves. Now suppose that the central bank of the country sells \$100,000 of government bonds to commercial banks.
- (a) Calculate the maximum change and state the direction of change in the money supply as a result of the central bank bond sale. Show your work.
- (b) Draw a correctly labeled graph of the money market and show the effect of the change in the money supply identified in part (a) on the nominal interest rate.
- (c) Given the change in the money supply in part (a), if the velocity of money is constant, what will happen to the nominal gross domestic product? Explain.
- (d) Based on the change in the nominal gross domestic product in part (c), what happens to the price level if the real gross domestic product is constant?

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**Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.**

3. Italy and Japan are trading partners and have flexible exchange rates. The Italian currency is the euro and the Japanese currency is the yen.
- (a) Suppose that the exchange rate between the euro and the yen is 1 euro = 100 yen. What is the price of an Italian coat in yen if the coat costs 120 euros in Italy?
- (b) Assume that real interest rates increase in Japan. Identify what will happen to net financial capital flows between Italy and Japan.
- (c) Draw a correctly labeled graph of the foreign exchange market for the yen and show the effect of the increase in real interest rates in Japan on the value of the yen.
- (d) Based solely on the change in the exchange rate identified in part (c), what will happen to Italy's exports to Japan? Explain.

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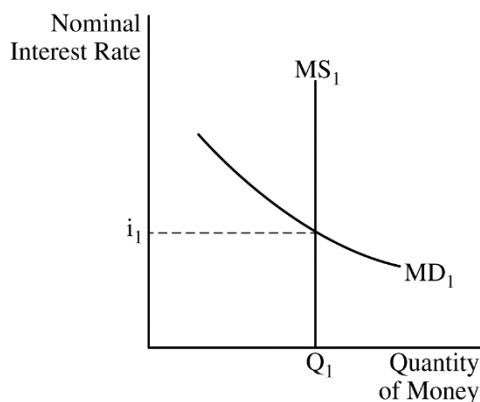
**Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.**

**Question 2: Short****5 points**

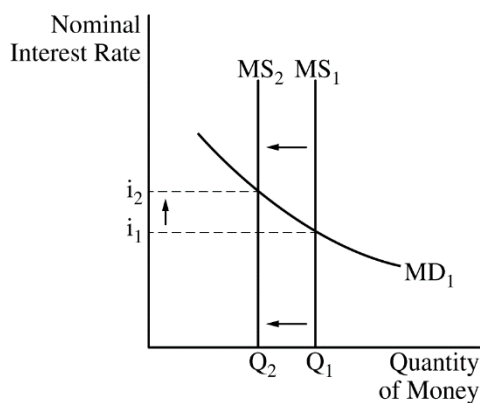
- (a) Calculate the maximum change in the money supply as a decrease of \$500,000 and show your work. **1 point**

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

- (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**