

---

# AP<sup>®</sup> Macroeconomics

## Sample Student Responses and Scoring Commentary Set 1

### Inside:

#### Free-Response Question 2

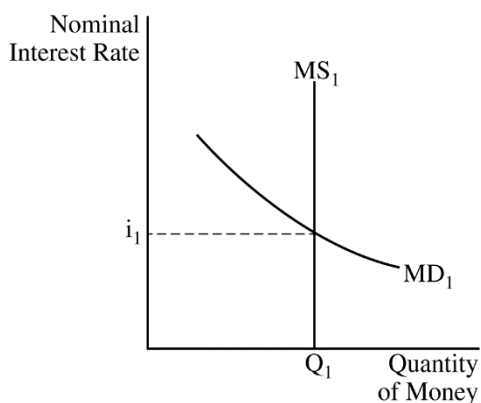
- Scoring Guidelines
- Student Samples
- Scoring Commentary

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

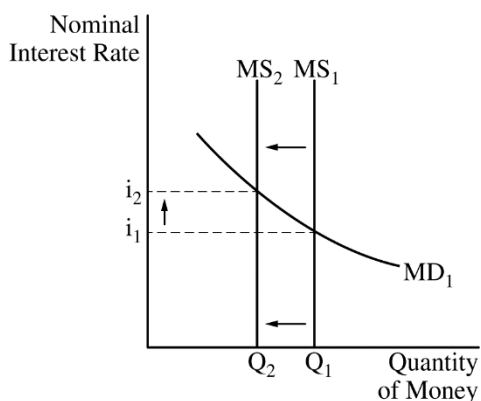
- (a) Calculate the maximum change in the money supply as a decrease of \$500,000 and show your work. **1 point**

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

- (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**

Important: Completely fill in the circle that corresponds to the question you are answering on this page.

Question 1

Question 2

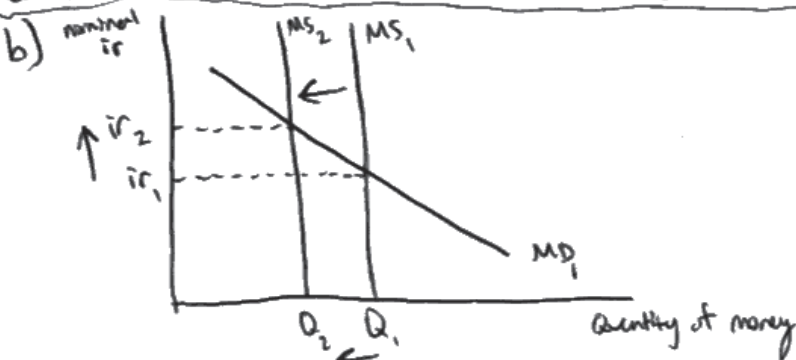
Question 3



Begin your response to each question at the top of a new page.

$$\begin{aligned} \text{d) maximum change} &= (-\$100,000) \left( \frac{1}{RR} \right) & RR &= .20 \\ &= (-\$100,000) \left( \frac{1}{.20} \right) \\ &= -\$500,000 \end{aligned}$$

The maximum change in money supply as a result of the central bank bond sale is a decrease of \$500,000 in the money supply.



c) since  $MV = PY$  where  $PY = \text{nominal GDP}$ , the nominal GDP will decrease because money supply is decreasing while the velocity of money remains constant.

d) If real GDP remains constant while nominal GDP decreases, then the price level will decrease.

Important: Completely fill in the circle that corresponds to the question you are answering on this page.

Question 1

Question 2

Question 3

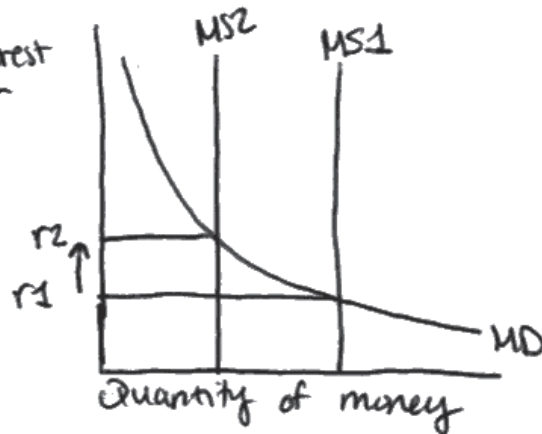
Begin your response to each question at the top of a new page.

$$a) \frac{1}{0.2}x - \$100,000 = 5x - \$100,000$$

$$= -\$500,000$$

The money supply will decrease by \$500,000

b) nominal interest rate,  $r$



c) The nominal GDP will decrease. Based on the equation  $MV = PY$ , if the money supply decreases ( $M$ ) and the velocity of money ( $V$ ) is constant, then the GDP will decrease because it is proportional to the money supply.

d) The price level will increase

Important: Completely fill in the circle that corresponds to the question you are answering on this page.

Question 1



Question 2

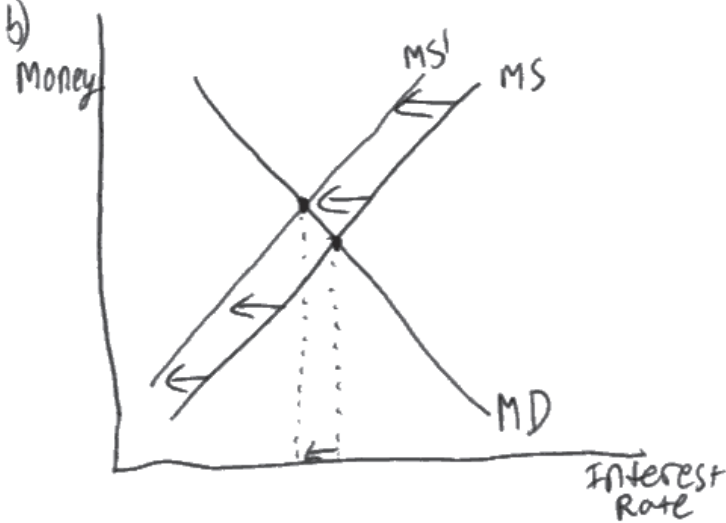


Question 3



Begin your response to each question at the top of a new page.

a)  $(\frac{1}{2})(100,000) = \$500,000$  decrease to Money Supply



- c) Since the money supply decreased, nominal GDP will ~~decrease~~ decrease, since the purchasing power of each dollar remaining in the money supply will increase.
- d) Price level will decrease.

## Question 2

**Note:** Student samples are quoted verbatim and may contain spelling and grammatical errors.

### Overview

The question examined students' understanding of open market operations, the effect of a change in the monetary base on the money supply, and how changes in the money supply affect the nominal interest rate, nominal GDP, and the price level. In part (a) students were asked to calculate the maximum change and state the direction of change in the money supply as a result of a central bank bond sale and to show their work. In part (b) students were asked to 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. In part (c) students were asked to identify and explain what will happen to the nominal gross domestic product as a result of the change in the money supply. Finally, in part (d) students were asked to identify what happens to the price level, based on the change in the nominal gross domestic product in part (c), if the real gross domestic product is constant.

### Sample: 2A

#### Score: 5

The response earned 1 point in part (a) for calculating the decrease in the money supply as \$500,000 and showing the work. The response earned the first point in part (b) for drawing a correctly labeled graph of the money market. The response earned the second point in part (b) for correctly shifting the money supply curve to the left and showing an increase in the nominal interest rate. The response earned 1 point in part (c) for stating that nominal GDP will decrease and explaining 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. The response earned 1 point in part (d) for stating that the price level will decrease.

### Sample: 2B

#### Score: 4

The response earned 1 point in part (a) for calculating the decrease in the money supply as \$500,000 and showing the work. The response earned the first point in part (b) for drawing a correctly labeled graph of the money market. The response earned the second point in part (b) for correctly shifting the money supply curve to the left and identifying an increase in the nominal interest rate. The response earned 1 point in part (c) for stating that nominal GDP will decrease and explaining 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. The response did not earn the point in part (d) because it states that the price level will increase.

### Sample: 2C

#### Score: 2

The response earned 1 point in part (a) for calculating the decrease in the money supply as \$500,000 and showing the work. The response did not earn the first point in part (b) because it did not draw a correctly labeled graph of the money market. The response did not earn the second point in part (b) because it does not illustrate an increase in nominal interest rates resulting from a

**Question 2 (continued)**

decrease in the money supply. The response did not earn the point in part (c) because it states that nominal GDP decreases as a result of increased purchasing power of the dollar. The response earned 1 point in part (d) for stating that price level decreases.