

AP[®] MACROECONOMICS
2009 SCORING GUIDELINES

Question 3

6 points (3 + 1 + 2)

(a) 3 points:

- One point is earned for stating that the maximum dollar amount the bank can initially lend is \$80.
- One point is earned for stating that the maximum change in demand deposits is \$500.
- One point is earned for stating that the maximum change in the money supply is \$400.

(b) 1 point:

- One point is earned for stating that the Federal Reserve's action will increase the money supply by at most \$25 million.

(c) 2 points:

- One point is earned for stating that the real wages will fall.
- One point is earned for explaining that real wages fall because the Federal Reserve's action causes inflation.

Write in the box the number of the question you are answering on this page as it is designated in the exam.

3 3A

a) i) maximum excess reserves = $\$100 - (\$100(0.2)) = \boxed{\$80}$

ii) $\$100 \times \text{multiplier} = \boxed{\$500}$

~~multiplier~~ multiplier = $\frac{1}{\text{required reserve rate}} = \frac{1}{0.2} = 5$

iii) maximum change in mS = $\Delta ER \times \text{multiplier}$
 $= \$80 \times 5 = \boxed{\$400}$

b) maximum Δ mS = $\$5 \text{ million} \times \text{multiplier} = \boxed{\$25 \text{ million}}$

c) $mS \uparrow \Rightarrow i \downarrow \Rightarrow \frac{C}{I} \uparrow \Rightarrow AE \uparrow \Rightarrow AD \uparrow \Rightarrow PL \uparrow \Rightarrow$ real wages \downarrow

real wages \downarrow because the $PL \uparrow$ allows people to buy less goods in the short run

III

Write in the box the number of the question you are answering on this page as it is designated in the exam.

3 B

a) i) $\$100 - (\$100)(0.2) = \boxed{\$80}$

ii) multiplier = $\frac{1}{\text{reserve requirement}}$

multiplier = $\frac{1}{0.2} = 5$ $(5)(\$100) = \boxed{\$500}$

iii) $\$500 - \$100 = \boxed{\$400}$

we must subtract the \$100 since it was already part of the money supply.

b) increase in money supply of \$5 million \rightarrow

$m = \frac{1}{0.2} = 5$

$5(\$5 \text{ million}) = \boxed{\$25 \text{ million}}$

note: (since this is completely new money entering the money supply, ~~there~~ the initial \$5 million is not subtracted.)

There is a $\boxed{\$25 \text{ million increase}}$ in the money supply

c) Since there is an increase in the money supply, AD shifts right. Therefore, in the short-run, output increases. Since output increases, $\boxed{\text{real wages increase}}$ in the short-run as well.

Write in the box the number of the question you are answering on this page as it is designated in the exam.

3

30

a) i) $.2 = rr$
 $.2 \times 100 = 20$
 $100 - 20 = \boxed{\$80}$

iii) $\frac{1}{rr} = \text{money multiplier}$
 $\frac{1}{.2} = 5$
 $5 \times 80 = \$400$

b) $5\,000\,000$
 $\underline{.2}$
 $1\,000\,000.0$

$5\,000\,000 - 1\,000\,000 = 4\,000\,000$
 $\quad \quad \quad \times \quad \quad \quad \underline{\quad \quad \quad 5}$

$\boxed{\$20m}$

c) the increase in money supply causes wages to increase in the short run

**AP[®] MACROECONOMICS
2009 SCORING COMMENTARY**

Question 3

Overview

This question tested students' abilities to calculate and apply the money multiplier and to determine the effect of an increase in the money supply on real wages in the short run.

Sample: 3A

Score: 6

The student earned all 6 points for this question.

Sample: 3B

Score: 4

The student lost 2 points in part (c). First, the student incorrectly concludes that an increase in the money supply would cause an increase in the real wage. Second, the student does not mention the correct explanation for the change in the real wage in the short run, which is an increase in the price level.

Sample: 3C

Score: 2

The student lost 1 point for failing to answer part (a)(ii). A point was lost in part (b) because the student incorrectly multiplies the money multiplier by \$4 million rather than \$5 million. The student lost 2 points in part (c) for incorrectly concluding that the increase in the money supply would result in an increase in the real wage in the short run, and for not providing a correct explanation for this change.