



## Chief Reader Report on Student Responses: 2025 AP<sup>®</sup> Macroeconomics Free-Response Questions

|                             |            |        |       |
|-----------------------------|------------|--------|-------|
| • Number of Students Scored | 176,938    |        |       |
| • Number of Readers         | 315        |        |       |
| • Score Distribution        | Exam Score | N      | %At   |
|                             | 5          | 36,070 | 20.4% |
|                             | 4          | 40,528 | 22.9% |
|                             | 3          | 42,389 | 24.0% |
|                             | 2          | 37,959 | 21.5% |
|                             | 1          | 19,992 | 11.3% |
| • Global Mean               | 3.20       |        |       |

The following comments on the 2025 free-response questions for AP<sup>®</sup> Macroeconomics were written by the Chief Reader, Sam Andoh, Professor of Economics, Southern Connecticut State University. They give an overview of each free-response question and of how students performed on the question, including typical student errors. General comments regarding the skills and content that students frequently have the most problems with are included. Some suggestions for improving student preparation in these areas are also provided. Teachers are encouraged to attend a College Board workshop to learn strategies for improving student performance in specific areas.

## Question 1

**Task:** Graph, Assert, Explain

**Topic:** Phillips Curve, Aggregate Demand, Foreign Exchange Market, Balance of Payments

|                                           | Max Points: | Mean Score: |
|-------------------------------------------|-------------|-------------|
| Point 1                                   | 1           | 0.60        |
| Point 2                                   | 1           | 0.56        |
| Point 3                                   | 1           | 0.23        |
| Point 4                                   | 1           | 0.38        |
| Point 5                                   | 1           | 0.37        |
| Point 6                                   | 1           | 0.25        |
| Point 7                                   | 1           | 0.56        |
| Point 8                                   | 1           | 0.12        |
| Point 9                                   | 1           | 0.59        |
| Point 10                                  | 1           | 0.20        |
| <b>Overall Mean Score:</b> 3.86 out of 10 |             |             |

### ***What were the responses to this question expected to demonstrate?***

The question assessed an understanding of the short-run and long-run Phillips curves (SRPC and LRPC) and their application to describing the state of the economy. It also evaluated an understanding of the foreign exchange market and its response to economic shocks.

The question begins by assuming that the hypothetical economy of Vortania is in long-run equilibrium.

In part A the task is to draw a correctly labeled graph of the SRPC and LRPC for Vortania and to label the long-run equilibrium point as P.

In part B the scenario introduces new residential construction projects in Vortania. Part B (i) requires stating the short-run effect on real output and explaining the reasoning. Part B (ii) requires showing the short-run effect of the new residential construction projects on the Phillips curve graph in part A, with the new equilibrium labeled as point S.

In part C the scenario establishes that Vortania and Rhodara are trading partners with flexible exchange rates. Vortania uses the Vortanian crown (VTC), and Rhodara uses the Rhodaran mark (RHM). It assumes Vortania's capital and financial account (CFA) balance is zero and that Vortania introduces a new tariff on imports from Rhodara. The task is to draw a correctly labeled graph of the foreign exchange market for the Vortanian crown, showing the effect of the tariff on the supply of the currency and its international value.

Part D builds on this by asking, based solely on the currency change shown in part C, whether Vortania's net exports will increase, decrease, or remain the same in the short run.

In part E, following the change in net exports in part D, the task is to identify the short-run effects on (i) the capital and financial account balance of Vortania, with explanation, and (ii) employment in Vortania.

Finally, part F presents a scenario in which the central bank of Vortania seeks to restore the crown to its original international value prior to the imposition of tariffs. The question asks whether the central bank should buy or sell Vortanian crowns in the foreign exchange market, with an explanation.

**How well did the responses address the course content related to this question? How well did the responses integrate the skill(s) required on this question?**

In part A 60% of responses earned point 1 for drawing a correctly labeled graph of the SRPC of Vortania. Fifty-six percent (56%) earned point 2 by including a correctly labeled LRPC and showing a point labeled P at the intersection of the SRPC and the LRPC.

In part B (i) 23% of responses earned point 3 for stating that real output will increase and explaining that the new residential construction projects increase investment spending, which increases aggregate demand. In part B (ii) 38% of responses earned point 4 for showing a point labeled S on the SRPC to the left of point P.

In part C 37% of responses earned point 5 for drawing a correctly labeled graph of the foreign exchange market for the Vortanian crown. For point 6, 25% of responses earned the point for shifting the supply curve of the Vortanian crown to the left and showing an appreciation of the Vortanian crown.

In part D 56% of responses earned point 7 for stating that Vortania’s net exports will decrease.

In part E (i) 12% of responses earned point 8 for stating that the capital and financial account (CFA) balance in Vortania will move into surplus and explaining that the current account (CA) moved into deficit and the balance of payments must balance ( $CA + CFA = 0$ ). In part E (ii) 59% of responses earned point 9 for stating that employment in Vortania will decrease.

Finally, in part F, 20% of responses earned point 10 for stating that the central bank of Vortania would sell Vortanian crowns in the foreign exchange market and explaining that the increased supply of the Vortanian crown will cause it to depreciate.

**What common student misconceptions or gaps in knowledge were seen in the responses to this question?**

| <i>Common Misconceptions/Knowledge Gaps</i>                                                                                                                                                                                                                                                                           | <i>Responses that Demonstrate Understanding</i>                                                                                                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Part B (i) Point 3</p> <ul style="list-style-type: none"><li>Not explaining why real output increased. Specifically, responses did not connect the rise in investment spending from new residential construction to an increase in aggregate demand, which is the mechanism driving the change in output</li></ul> | <ul style="list-style-type: none"><li>Stating that the real output will increase and explaining that the new residential construction projects increase investment spending, which increases aggregate demand</li></ul> |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Part C Points 5 and 6</p> <ul style="list-style-type: none"> <li>Inverting the currency fraction label on the vertical axis or omitting axis indicators for the equilibrium, which are essential for analyzing directional changes in the shift point</li> </ul>                                                                                                                                                                                                                              | <ul style="list-style-type: none"> <li>Drawing a correctly labeled graph of the foreign exchange market for the Vortanian crown and showing a leftward shift in the supply curve of the Vortanian crown, resulting in an appreciation of the Vortanian crown</li> </ul>     |
| <p>Part E (i) Point 8</p> <ul style="list-style-type: none"> <li>Not explaining the relationship between the current account (CA) and the capital and financial account (CFA). Some treated the capital and financial account as two separate entities.</li> </ul>                                                                                                                                                                                                                               | <ul style="list-style-type: none"> <li>Stating that the capital and financial account balance in Vortania will move into surplus and explaining that the current account moved into deficit and the balance of payments must balance (<math>CA + CFA = 0</math>)</li> </ul> |
| <p>Part F Point 10</p> <ul style="list-style-type: none"> <li>Identifying incorrect monetary policy actions like “selling bonds” instead of the correct currency market intervention—selling the crown</li> <li>Not providing sufficient economic reasoning or not tying the assertion to the foreign exchange market. For example, stating “sell” without referencing the supply of the currency or stating “depreciate” without linking it to changes in the supply of the currency</li> </ul> | <ul style="list-style-type: none"> <li>Stating that the central bank of Vortania would sell Vortanian crowns in the foreign exchange market and explaining that the increased supply of the Vortanian crown will cause it to depreciate</li> </ul>                          |

***Based on your experience at the AP<sup>®</sup> Reading with student responses, what advice would you offer teachers to help them improve student performance on the exam?***

Teachers should stress accurate graph labeling and equilibrium identification. Having students explain their graph construction aloud or perform peer reviews of each other’s work can also reinforce correct practices and deepen understanding of foreign exchange market dynamics.

Teachers should clarify that CFA is a single account and reinforce the identity  $CA + CFA = 0$  using simple numerical examples. Teachers might also incorporate flowcharts or concept maps showing the links between the CFA, the loanable funds market, and the foreign exchange market.

Teachers should focus on helping students distinguish between domestic monetary policy tools and foreign exchange market actions. Providing practice questions that ask students to explain both the policy action and its expected effects on currency value and capital flows can help reinforce accurate reasoning and application.

***What resources would you recommend to teachers to better prepare their students for the content and skill(s) required on this question?***

Teachers are encouraged to sign in to AP Classroom to access AP Daily videos and find questions on the topics and skills addressed in this question. AP teachers can assign the short AP Daily videos as homework, warm-ups, lectures, reviews, and more. AP teachers can also use the AP Question Bank in AP Classroom to enable students to practice and receive feedback on formative topic questions and past AP Exam questions.

## Question 2

**Task:** Graph, Assert, Explain

**Topic:** Monetary Policy with Limited and Ample Reserves, The Reserve Market, Long-Run Self-Adjustment

|                                   | Max Points: | Mean Score: |
|-----------------------------------|-------------|-------------|
| Point 1                           | 1           | 0.52        |
| Point 2                           | 1           | 0.31        |
| Point 3                           | 1           | 0.18        |
| Point 4                           | 1           | 0.18        |
| Point 5                           | 1           | 0.31        |
| Overall Mean Score: 1.51 out of 5 |             |             |

***What were the responses to this question expected to demonstrate?***

The question assessed an understanding of monetary policy. It begins by assuming that the economies of Country L and Country A are currently in short-run equilibrium at output levels below full employment and that both countries intend to use monetary policy to close their output gaps. Country L is described as having a banking system with limited reserves, and Country A's banking system has ample reserves.

Part A asks for the identification of an open-market operation action that Country L would implement to move the economy toward full employment in the short run.

Part B asks for the identification of a specific monetary policy action that Country A would implement to move the economy toward full employment in the short run.

In part C the task is to draw a correctly labeled graph of the reserve market in Country A and to show the effect of the monetary policy action identified in part B on the policy rate.

In part D the scenario changes to assume that no policy action is taken in Country A and that the economy remains in short-run equilibrium at an output level below full employment. The question asks whether short-run aggregate supply (SRAS) in Country A will increase, decrease, or remain the same if the economy self-adjusts in the long run, and requires an explanation.

***How well did the responses address the course content related to this question? How well did the responses integrate the skill(s) required on this question?***

In part A 52% of responses earned point 1 for stating that the central bank of Country L would buy bonds.

In part B 31% of responses earned point 2 for stating that the central bank of Country A would decrease administered interest rates or decrease interest on reserves.

In part C 18% of responses earned point 3 for drawing a correctly labeled graph of the reserve market with the supply curve intersecting the demand curve in the range of ample reserves. For point 4, 18% of responses earned the point for showing a decrease in administered interest rates, resulting in a decrease in the policy rate.

Finally, in part D 31% of responses earned point 5 for stating that short-run aggregate supply will increase until it reaches full employment and explaining that the increase in short-run aggregate supply will be caused by a decrease in input prices and/or inflationary expectations.

***What common student misconceptions or gaps in knowledge were seen in the responses to this question?***

| <i>Common Misconceptions/Knowledge Gaps</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <i>Responses that Demonstrate Understanding</i>                                                                                                                                                                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Part B Point 2</p> <ul style="list-style-type: none"> <li>Proposing monetary policy actions appropriate for a banking system with limited reserves (e.g., buying bonds or decreasing the required reserve ratio) rather than one with ample reserves</li> <li>Proposing fiscal policy actions rather than monetary policy actions</li> </ul>                                                                                                                                                            | <ul style="list-style-type: none"> <li>Stating that the central bank would decrease its administered interest rates or decrease interest on reserves, which are monetary policy actions that are appropriate for addressing a recessionary gap in a banking system with ample reserves</li> </ul>                           |
| <p>Part C Points 3 and 4</p> <ul style="list-style-type: none"> <li>Drawing a money market graph or AD-AS graph instead of the required reserve market graph</li> <li>Drawing graphs that had the general shape of the demand for reserves and supply of reserves curves but then labeling those curves as the demand for money and the supply of money</li> <li>Omitting the supply of reserves curve or failing to indicate the equilibrium policy rate at the intersection of the two curves</li> </ul> | <ul style="list-style-type: none"> <li>Drawing a correctly labeled graph of the reserve market with the supply curve intersecting the demand curve in the range of ample reserves</li> <li>Showing a decrease in the lower bound of the demand curve for reserves, resulting in a decrease in the policy rate</li> </ul>    |
| <p>Part D Point 5</p> <ul style="list-style-type: none"> <li>Not explaining why the short-run aggregate supply curve shifts to the right by explaining a decrease in input prices (e.g., nominal wages) and/or inflationary expectations</li> </ul>                                                                                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>Stating that short-run aggregate supply will increase until it reaches full employment and explaining 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</li> </ul> |

***Based on your experience at the AP<sup>®</sup> Reading with student responses, what advice would you offer teachers to help them improve student performance on the exam?***

Teachers should emphasize how central banks carry out monetary policy in a banking system with ample reserves.

Teachers should help students to connect long-run self-adjustment to changes in input costs like wages. They can use labor market examples to build cause-and-effect reasoning in full explanations that combine curve shifts with economic reasoning.

***What resources would you recommend to teachers to better prepare their students for the content and skill(s) required on this question?***

Teachers can use the resources released by the College Board for teaching monetary policy with ample reserves, which include:

- Videos for teachers explaining the updates, available in AP Classroom (Course Guide → Overview → Teacher Resources)
- Practice exams, available on the AP Course Audit site and in AP Classroom
- Progress check questions, topic questions, question bank questions, and AP Daily videos available in AP Classroom

The Federal Reserve Bank of St. Louis has also developed a number of helpful resources for teaching the new tools of monetary policy that are available on its website:

<https://www.federalreserveeducation.org/teaching-resources/economics/curriculum/new-monetary-policy-tools-landing-page>.



### Question 3

**Task:** Explain, Graph, Calculate

**Topic:** Real v. Nominal GDP, Aggregate Demand-Aggregate Supply, Multipliers

|                                          | Max Points: | Mean Score: |
|------------------------------------------|-------------|-------------|
| Point 1                                  | 1           | 0.52        |
| Point 2                                  | 1           | 0.31        |
| Point 3                                  | 1           | 0.69        |
| Point 4                                  | 1           | 0.43        |
| Point 5                                  | 1           | 0.27        |
| <b>Overall Mean Score:</b> 2.21 out of 5 |             |             |

#### ***What were the responses to this question expected to demonstrate?***

The question provides economic data for a hypothetical economy of the country of Middleland. A table contains the quantities and prices of shirts, bread, and pants (the only three goods produced in Middleland) produced in the years 2021 and 2022. The question assumes 2021 is the base year.

In part A the task is to state whether the real gross domestic product (GDP) in 2021 in Middleland was greater than, less than, or equal to the nominal GDP in 2021 and explain.

In part B the task is to calculate the real GDP in 2022 and to show the work.

In part C the scenario assumes that Middleland was in short-run equilibrium in 2022 and that POTENTIAL real GDP was \$1,150 in 2022. The response must include a correctly labeled graph of the aggregate demand (AD), short-run aggregate supply (SRAS), and long-run aggregate supply (LRAS) curves and show each of the following:

- The equilibrium real output and price level, labeled  $Y_1$  and  $PL_1$ , respectively
- The full-employment output, labeled  $Y_F$

Finally, in part D the scenario assumes that the marginal propensity to consume (MPC) is 0.8 and requires calculating the minimum change in government spending needed to close the output gap in the short run, including the direction of the change, and showing the work.

#### ***How well did the responses address the course content related to this question? How well did the responses integrate the skill(s) required on this question?***

In part A 52% of responses earned point 1 for stating that the nominal GDP and the real GDP are equal and explaining that because 2021 is the base year, no price level changes have occurred, and real values always equal nominal values in the base year.

In part B 31% of responses earned point 2 for calculating the real gross domestic product as \$1,190 and showing the work.

In part C (i) 69% of responses earned point 3 by drawing a correctly labeled aggregate demand–aggregate supply graph showing  $PL_1$  and  $Y_1$  at the intersection of the aggregate demand (AD) and short-run aggregate supply (SRAS) curves. In part C (ii) 43% of responses earned point 4 for showing a vertical long-run aggregate supply (LRAS) curve to the left of  $Y_1$  and labeling the full-employment output as  $Y_F$ .

Finally, in part D, 27% of responses earned point 5 for calculating that the minimum change in government spending needed to close the output gap is a decrease of \$8 and showing the work.

**What common student misconceptions or gaps in knowledge were seen in the responses to this question?**

| <i>Common Misconceptions/Knowledge Gaps</i>                                                                                                                                                                                                                                                                                                                               | <i>Responses that Demonstrate Understanding</i>                                                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| <p>Part D Point 5</p> <ul style="list-style-type: none"><li>• Misunderstanding how to calculate a spending change needed to close an output gap (e.g., multiplying the spending multiplier by the output gap, rather than dividing)</li><li>• Stating an increase in government spending, rather than a decrease in government spending to close the output gap</li></ul> | <ul style="list-style-type: none"><li>• Calculating a decrease of \$8 and showing the work</li></ul> |

**Based on your experience at the AP® Reading with student responses, what advice would you offer teachers to help them improve student performance on the exam?**

Teachers should focus on guiding students through each step in a multiplier calculation problem: identifying the MPC/MPS, calculating the multiplier, and applying it logically. They can use error analysis and verbal explanations to deepen understanding beyond computation.

**What resources would you recommend to teachers to better prepare their students for the content and skill(s) required on this question?**

Teachers are encouraged to sign in to AP Classroom to access AP Daily videos and find questions on the topics and skills addressed in this question. AP teachers can assign the short AP Daily videos as homework, warm-ups, lectures, reviews, and more. AP teachers can also use the AP Question Bank in AP Classroom to enable students to practice and receive feedback on formative topic questions and past AP Exam questions.