2025

AP® Microeconomics

Sample Student Responses and Scoring Commentary Set 2

Inside:

Free-Response Question 3

- ☑ **Scoring Guidelines**
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Question 3: Short — 5 points

A Point 1	State that Lucy will maximize her total utility by consuming 5 units of Good X and 4 units of Good Y.	**1 point**
B Point 2	Calculate Lucy's total utility of consuming 2 units of Good X and 2 units of Good Y as 88 utils and show your work. $\text{Total Utility from consuming 2 units of Good X} = 20 \text{ utils} + 16 \text{ utils} = 36 \text{ utils}$ $\text{Total Utility from consuming 2 units of Good Y} = 28 \text{ utils} + 24 \text{ utils} = 52 \text{ utils}$ $\text{Total Utility from consuming 2 units of Good X and 2 units of Good Y} = 36 \text{ utils} + 52 \text{ utils} = 88 \text{ utils}$	**1 point**
C (i) Point 3	State that Lucy can purchase a maximum of 4 units of Good Y.	**1 point**
(ii) Point 4	State that Lucy's optimal consumption is 4 units of Good X and 3 units of Good Y and explain that at this combination, the marginal utility per dollar spent on the last unit of Good X is 4 utils/$ (= 8 utils/$2), and the marginal utility per dollar spent on the last unit of Good Y is 4 utils/$ (= 16 utils/$4) when Lucy spends her entire budget of $20 (= $2 × 4 units of Good X + $4 × 3 units of Good Y).	**1 point**
D Point 5	State that goods X and Y are substitute goods and explain that the cross-price elasticity of demand between Good X and Good Y is positive. A positive cross-price elasticity indicates that an increase (a decrease) in the price of Good X will increase (decrease) the demand; therefore, the quantity demanded of a substitute good, Good Y.	**1 point**

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. 5 units of Good X and 4 units of Good Y will maximize Lucy's total utility.

B. 2 units of Good X

$TU_X = MU_{X=1} + MU_{X=2}$
$= 20 + 16$
$= 36$

2 units of Good Y

$TU_Y = MU_{Y=1} + MU_{Y=2}$
$= 28 + 24$
$= 52$

$TU = TU_X + TU_Y = 36 + 52$
$= 88$

C. i. $2 \cdot \$2 = \$4$
$\$20 - \$4 = \$16$
$\frac{\$16}{\$4} = 4 \longrightarrow$ Lucy can purchase a maximum of 4 units of Good Y.

ii.

Q	$\frac{MU_X}{P_X}$	$\frac{MU_Y}{P_Y}$
1	10	7
2	8	6
3	6	4
4	4	2
5	2	-1
6	-1	-2

$(3 \cdot \$2) + (2 \cdot \$4) = \$6 + \$8$
$= \$14 < \$20$

$(4 \cdot \$2) + (3 \cdot \$4) = \$8 + \$12$
$= \$20 = \$20$

$(5 \cdot \$2) + (4 \cdot \$4) = \$10 + \$16$
$= \$26 > \$20$

Lucy's optimal combination of Good X and Good Y is 4 units of Good X and 3 units of Good Y since the combination is where the marginal utility per dollar of Good X is equal to the marginal utility of Good Y ($\frac{MU_X}{P_X} = \frac{MU_Y}{P_Y} = 4$), and the combination completely

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.

ii. (continued) uses up her budget of $20.

D. Goods X and Y are substitute goods, since the cross-price elasticity between the two goods is positive, meaning an increase in the price of one good will increase the quantity demanded of the other good.

Use a pencil or pen with black or dark blue ink. Do NOT write your name. Do NOT write outside the box.

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. 5 units of good X and 4 units of good Y

B. 20+16=36 (utility from good X)
28+24=52 (utility from good Y)
36+52=88
Lucy's total utility is 88

C. i) The maximum quantity of good Y she can purchase is 4 units
ii) Her optimal quantity is 4 units of good X and 3 units of good Y using marginal analysis the first few units of good X has a higher marginal utility so consume until the marginal utility of good Y is more and go until all money is used.

D. They are substitutes because the cross-price elasticity is positive meaning a price increase in one good leads to the quantity demanded increase of the other.

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) 4 units of Good X and 4 units of Good Y

B) TU = 20+16+28+24 = 88 utils

Ci) $20 = 2(2) + 4y$

$4y = 16$

$y = 4$ 4 units of Good Y

ii) The optimal combination of Good X and Good Y is 5 units of Good X and 4 units of Good Y, as these are the quantities in which marginal utility derived is still positive (4 utils for Good X and 8 utils for Good Y).

D) Good X and Y are complementary goods because as the price of Good X decreases, a cross-price elasticity of +1.6 between the two goods implies that the price of Good Y also decreases.

Question 3

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

Overview

NEW for 2025: The question overviews can be found in the *Chief Reader Report on Student Responses* on AP Central.

Sample: 3A
Score: 5

Part A

The response earned point 1 for stating 5 units of Good X and 4 units of Good Y.

Part B

The response earned point 2 for calculating total utility as 88 utils and showing the work.

Part C

The response earned point 3 for stating 4 units of Good Y. The response earned point 4 for stating that Lucy's optimal consumption is 4 units of Good X and 3 units of Good Y and explaining that at this combination, the marginal utility per dollar spent on the last unit of Good X is equal to the marginal utility per dollar spent on the last unit of Good Y and both equal 4 utils/$ when Lucy spends her entire budget of $20 (= $2 × 4 units of Good X + $4 × 3 units of Good Y).

Part D

The response earned point 5 for stating that Good X and Good Y are substitute goods and explaining that the cross-price elasticity of demand is positive and the increase in the price of one good causes an increase in the quantity demanded for the other good.

Sample: 3B
Score: 4

Part A

The response earned point 1 for stating 5 units of Good X and 4 units of Good Y.

Part B

The response earned point 2 for calculating total utility as 88 utils and showing the work.

Part C

The response earned point 3 for stating 4 units of Good Y. The response did not earn point 4 because the response does not correctly explain that the marginal utility per dollar of the last unit of Good X equals the marginal utility per dollar of the last unit of Good Y and both equal 4 utils/$ when the entire budget of $20 is spent.

Question 3 (continued)

Part D

The response earned point 5 for stating Good X and Good Y are substitutes and explaining that the cross-price elasticity of demand is positive and the increase in the price of one good causes an increase in the quantity demanded for the other good.

Sample: 3C
Score: 2

Part A

The response did not earn point 1 because the response does not state 5 units of Good X and 4 units of Good Y.

Part B

The response earned point 2 for calculating total utility as 88 utils and showing the work.

Part C

The response earned point 3 for stating 4 units of Good Y. The response did not earn point 4 because the response does not state that Lucy's optimal consumption is 4 units of Good X and 3 units of Good Y.

Part D

The response did not earn point 5 because the response does not state that Good X and Good Y are substitutes.