

Using GOAL to Study for Exam CB2!

Actuarial University

QUESTION 28 OF 36 Question # Go! [Icons] [Prev] [Next] X

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Written Answer

This problem features a written answer component. Please write out your solution using your preferred method (note the problem number). When you have reached the end of the assessment, select the **Score** button to compare your written answers to the rubric provided. Use the "Self Assessment Score" tool to record your results. Once you've finished scoring all of your written answer problems, click on the **Summary** button to see your final results.

Information

The marginal utility for an individual is measured as the maximum amount (in US dollars) that they are willing to pay for consuming a unit of Good A.

The table below shows the marginal utility for consuming various units of Good A priced at \$8 per unit.

Quantity consumed	0	1	2	3	4	5	6
Marginal utility (\$)		25	20	14	10	6	4

Question - Part A [1 point]

(i) Calculate the individual's total utility from consuming four units of Good A.

Question - Part B [1 point]

(ii) Calculate the individual's total expenditure from consuming five units of Good A.

Question - Part C [1 point]

(iii) Calculate the individual's marginal consumer surplus from consuming a third unit of Good A.

Question - Part D [1 point]

(iv) Calculate the individual's total consumer surplus from consuming two units of Good A.

Question - Part E [2 points]

(v) Calculate the level of consumption at which total consumer surplus is maximised.

Flag problems for review, record notes, and email a professor for help.

The timer helps you keep track for Simulated Exams

Background information to get you started.

Exam Style questions with points system for easy scoring.

See the solution below!

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Question - Part A [1 point]

(i) Calculate the individual's total utility from consuming four units of Good A.

Self Assessment & Solution - Part A

Total utility is the total satisfaction a consumer gets from the consumption of all the units of a good consumed within a given time period. Then, the individual's total utility from consuming four units of Good A is given by:

US\$69 = 25 + 20 + 14 + 10 [1 point]

Self Assessment Score: [Dropdown]

Question - Part B [1 point]

(ii) Calculate the individual's total expenditure from consuming five units of Good A.

Self Assessment & Solution - Part B

Total consumer expenditure on a product (TE) is the price of the product multiplied by the quantity purchased: $TE = P \times Q$. Then, the individual's total expenditure from consuming five units of Good A is:

5 units at US \$8 = US \$40 [1 point]

Self Assessment Score: [Dropdown]

Question - Part C [1 point]

(iii) Calculate the individual's marginal consumer surplus from consuming a third unit of Good A.

Self Assessment & Solution - Part C

Marginal consumer surplus is the excess of utility from the consumption of one more unit of a good (MU) over the price paid: $MCS = MU - P$. The individual's marginal consumer surplus from consuming a third unit of Good A.

Given: $MU = 14$, and $P = 8$

$MCS = MU - P = 14 - 8 = 6$ [1 point]

Self Assessment Score: [Dropdown]

Question - Part D [1 point]

(iv) Calculate the individual's total consumer surplus from consuming two units of Good A.

Self Assessment & Solution - Part D

Total consumer surplus is the excess of a person's total utility from the consumption of a good (TU) over the total amount that person spends on it (TE): $TCS = TU - TE$. Then, the individual's total consumer surplus from consuming two units of Good A:

$TU = 25 + 20 = 45$ and $TE = 2 \times 8 = 16$.

Then:

$TCS = TU - TE = 45 - 16 = 29$ [1 point]

Self Assessment Score: [Dropdown]

Question - Part E [2 points]

(v) Calculate the level of consumption at which total consumer surplus is maximised.

Self Assessment & Solution - Part E

People will go on purchasing additional units as long as they gain additional consumer surplus: in other words, as long as the price they are prepared to pay exceeds the price they are charged ($MU > P$).

Then, the level of consumption at which total consumer surplus is maximised is at 4 units, which is the maximum level of consumption at which $MU > P$.

Then:

$TCS = TU - TE = (25 + 20 + 14 + 10) - (4 \times 8) = 69 - 32 = \37

[.5 points for TU, .5 points for TE and 1 point for TCS]

Self Assessment Score: [Dropdown]

Test Tip

In numerical questions such as this, where several quantities need to be calculated before the final answer to the question is determined, even though you may use a calculator to arrive at the final answer, it is best to show all your workings as the mark is often distributed among different calculations and if the final answer is incorrect you may not lose all the marks. Here in (v) TU , TE and TCS all allocated part of the mark.

Rate this problem [Excellent] [Needs Improvement] [Inadequate]

Dive into the solutions and have each question broken down step by step.

Grade your performance using the self assesment.

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