

ECON 101, Sen Finance Quiz 1
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Choose a numerical answer that is within $\pm 1\%$ of the answer you calculate. For example, if you calculate \$500 then the right answer should be between \$495 to \$505. Or if you choose 11% then the right answer should be between 10.89% and 11.11%.

Jai consumes 2 goods, mangoes and guavas. If the number of mangoes is M , and the number of guavas is G , then Jai's utility function is given by:

$$U = M^{0.4} * G^{0.6}$$

Note that the above utility function is increasing in the number of both mangoes and guavas.

Jai's budget is Rs. 4,000. The price of a mango is 4 rupees, whereas of a guava is 2 rupee. Jai's consumption is over a period, that is he spends the entire 4,000 rupees during the period.

Question 1: If Jai consumes 1,000 guavas, how many mangoes does he consume?

A) 300 B) 400 C) 500 D) 1,000

Define marginal utility from mangoes as the change in utility from consuming one more mango, and similarly marginal utility from guavas as the change from one more guava.

Data for Questions 2 to Questions 9: Suppose Jai consumes guavas and mangoes from as given by the answer to Question 1.

Question 2: What is Jai's utility?

A) 697.86 B) 757.86 C) 817.86 D) 853.86

Question 3: What is the Marginal Utility of mangoes?

A) 0.6059 B) 0.6959 C) 0.7259 D) 0.7859

Question 4: What is the Marginal Utility of guavas?

A) 0.6546 B) 0.5746 C) 0.5146 D) 0.4546

Question 5: What is the ratio of Marginal Utility to price for mangoes?

A) 0.1115 B) 0.1215 C) 0.1315 D) 0.1515

Question 6: What is the ratio of Marginal Utility to price for guavas?

A) 0.2073 B) 0.2273 C) 0.2473 D) 0.2873

Question 7: According to the above ratios and Jai's budget constraint which of the following (Mango, Guava) pair is feasible (satisfies the budget constraint) and increases Jai's utility (from the utility given by the answer to Question 1)

A) (500, 1,000) B) (501, 998) C) (500, 998) D) (499, 1,002)

Question 8: Calculate the new utility from the changed consumption given by the answer in Question 7.

A) 718.16 B) 758.16 C) 828.16 D) 888.16

Question 9: What is the change in utility from Question 2 to Question 8?

A) 0.3017 B) 0.4017 C) 0.5017 D) 0.6017

Question 10: Is there another way in which we can approximately calculate the answer to Question 9?

Yes. Note that $2 * MU_{Guavas} - 1 * MU_{Mangoes} = 0.3033$

This is approximately equal to the change in utility. It is not exactly equal to the change in utility because we are dealing with discrete quantities, rather than infinitesimal quantities as required by calculus.

Answers:

- 1) C
- 2) B
- 3) A
- 4) D
- 5) D
- 6) B
- 7) D
- 8) B
- 9) A

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