

ECON 100 - Introduction to Economics

Homework 3

- Define any variables you need to answer the problems.
- You may use any material from this course (including other students). You may use Gen AI to help check your work or understanding, but you should not copy-paste solutions or answers obtained from Chat GPT/AI.
- Define any variables you need to answer the problems.
- Keep your short-answer explanations short but clear. Your goal is to convince a skeptical grader that you understand the relevant concepts well enough to answer the question you are given.
- The questions on this homework sum to 64.
- Please be sure to write down the name(s) of anyone else you worked with on this homework (either at the top or under your name). Place a star next to your name OR underline OR some way to make it easy for me to tell which homework is whose.
- Bring any and all questions to office/student hours!

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1. (2 points) What is your name?
 2. (2 points) What section are you in? (Either section number or what time your class meets)

1 True/False Questions

Indicate “T” rue or “F” alse for each of the following statements or claims. If you correctly explain why a statement or claim is false, I will give you a bonus point up to a 100% on this homework.

3. (2 points) **Claim:** The slope of a demand/supply curve is enough to calculate elasticity, since elasticity is constant along a linear demand or supply curve.
4. (2 points) **Claim:** Elasticity is a unit-free measure of how one variable responds to another.
5. (2 points) **Claim:** If another coffee shop opened on campus, we would expect student demand for Euphoria coffee to become less elastic.
6. (2 points) Costco and Sam’s Club both sell hot dogs, and I can’t tell the difference between the two hot dogs. When Sam’s Club increased the price of hot dogs, I ate fewer Sam’s Club hot dogs and more Costco hot dogs. **Claim:** My cross price elasticity of quantity demanded for Costco and Sam’s Club hot dogs is positive.
7. (2 points) **Claim:** When calculating point-elasticities, the point you pick matters. We use midpoint elasticity to take an average of the two possible point-elasticities.

2 Multiple Choice Questions

Choose the best answer for each question. There is ONLY one correct answer for each question. No explanation necessary.

8. (2 points) When the price of a Euphoria coffee is \$3, Darcie buys 3 coffees each week. After Euphoria raises the price to \$5, Darcie still buys 3 coffees per week. Which best categorizes Darcie's elasticity of demand for Euphoria coffee based on the information provided?
 - A. Perfectly inelastic.
 - B. Inelastic.
 - C. Elastic.
 - D. Perfectly elastic.
9. (2 points) Euphoria is willing to supply 100 coffees when the price is \$4 per coffee, and 150 coffees when the price is \$5 per coffee. Using what we have learned in class, calculate Euphoria's price elasticity of quantity supplied.
 - A. 2.
 - B. 1.8.
 - C. 1.67.
 - D. 1.5.
10. (2 points) Ava is a PhD student on a small stipend. She knows she should not eat McDonald's so often but sometimes it is cheaper than healthier grocery store food. Suppose she eats at McDonald's 5 times a week, and she purchases and cooks healthier grocery store food twice a week. If her stipend were to increase, she would eat McDonald's less often. If the price of McDonald's were to increase, however, she would have to purchase grocery store food less often in order to be able to eat every day. Which option best describes McDonald's to Ava?
 - A. Ordinary and Inferior.
 - B. Ordinary and Normal.
 - C. Giffen and Inferior.
 - D. Giffen and Normal.
11. (2 points) Suppose the price of a Hamilton Citrus Bowl t-shirt (a traditional hockey game at Hamilton) increases from free (\$0) to \$10. After the price change, the quantity of Hamilton hockey towels decreases from 500 to 400 even though the price of towels did not change. Calculate the cross-price elasticity of demand, and indicate if Hamilton Citrus Bowl t-shirts and hockey towels are substitutes or complements.
 - A. -2, Complements.
 - B. 2, Substitutes.
 - C. 9, Substitutes.
 - D. -9, Complements.
12. (2 points) Suppose demand for Hamilton water bottles is given by $Q=20-5P$. What is the price elasticity of demand calculated using when the price is \$1 and when the price is \$2 per water bottle?
 - A. -0.125.
 - B. -1.
 - C. -1.25.
 - D. -3.

3 Short Answer Questions

These questions all require math, diagrams, and/or written explanations. Remember you are trying to convince me you understand the why and how of what you are doing, not simply that you are able to get the numerical/graphical answer correct. Include specific concepts from class in your written explanations for full credit.

13. (6 points) Two drivers – Tom and Jerry – each drive up to a gas station. Before looking at the price, each places an order. Tom says, “I’d like 10 gallons of gas.” Jerry says, “I’d like \$10 worth of gas.” How do Tom and Jerry’s price elasticities of demand likely compare? Explain.

14. Below is Bill’s demand schedule for Bonomo’s ice cream sundaes at two different monthly income levels.

Price	Q_D (Income=\$10,000)	Q_D (Income=\$12,000)
8	40	50
10	32	24
12	24	30

- (a) (6 points) Using the midpoint method, calculate Bill’s price elasticity of demand between when a sundae costs \$8 and when a sundae costs \$10 if Bill’s income is \$10,000.

- (b) (4 points) How would you characterize Bill’s elasticity of demand between these two points? Elastic, inelastic, etc. Explain.

(c) (4 points) Are Bonomo's sundaes a Giffen or ordinary good for Bill? Explain.

(d) (6 points) Using the midpoint method, calculate Bill's income elasticity of demand when a sundae costs \$12 between when Bill's income is \$10,000 and Bill's income is \$12,000. How would you characterize Bill's elasticity of demand between these two points? Elastic, inelastic, etc.

(e) (4 points) Are Bonomo's sundaes a normal or inferior good for Bill? Explain.

15. (10 points) Suppose New York State passes an additional tax on each gallon of gasoline sold. The State says the sellers of gas are the ones who must pay this tax. Also suppose New Yorker's demand for gas is perfectly inelastic (or close to it). **Question:** If you owned a gas station, wanted to maximize profits, and had some power to set prices, how would you change your price in response to this new tax? Explain using the concept of elasticity.