

# Elasticities of Demand Problem Set 2

Principles of Microeconomics

August 4, 2025

## Instructions

Please answer on a separate sheet of paper and submit on Gradescope.

## Multiple Choice

Please briefly explain your choice with a sentence.

1. An increase in a good's price reduces the total amount consumers spend on the good if the \_\_\_\_\_ elasticity of demand is \_\_\_\_\_ than one.
  - (a) income; less
  - (b) income; greater
  - (c) price; less
  - (d) price; greater
2. A linear downward-sloping demand curve is
  - (a) inelastic.
  - (b) unit elastic.
  - (c) elastic.
  - (d) inelastic at some points and elastic at others.
3. The citizens of Lilliput spend a higher fraction of their income on food than do the citizens of Brobdingnag. The reason could be that
  - (a) Lilliput has lower food prices, and the price elasticity of demand is zero.
  - (b) Lilliput has lower food prices, and the price elasticity of demand is 0.5.
  - (c) Lilliput has lower income, and the income elasticity of demand is 0.5.
  - (d) Lilliput has lower income, and the income elasticity of demand is 1.5.

## Free Response

4. A price change causes the quantity demanded of a good to decrease by 30% while the total revenue of that good increases by 15%. Is the demand curve elastic or inelastic? Please explain in a sentence.
5. Two drivers, Walt and Jessie, each drive up to a gas station. Before looking at the price, each places an order. Walt says, "I'd like 10 gallons of gas." Jessie says, "I'd like \$10 worth of gas." What is each driver's price elasticity of demand? Please explain in two sentences.
6. Suppose that your demand schedule for pizza is as follows:

Price	Quantity Demanded income = \$20,000	Quantity Demanded income = \$24,000
\$8	40 pizzas	50 pizzas
10	32	45
12	24	30
14	16	20
16	8	12

- (a) Use the midpoint method to calculate your price elasticity of demand as the price of pizza increases from \$8 to \$10 if (i) your income is \$ 20,000 and (ii) your income is \$24,000. Please show all relevant calculations.
  - (b) Calculate your income elasticity of demand as your income increases from \$20,000 to \$24,000 if (i) the price is \$12 and (ii) the price is \$16.
7. Cups of coffee and donuts are complements. Both have inelastic demand. A hurricane destroys half the coffee bean crop.
  - (a) What happens to the price of coffee beans? Please explain using a diagram and a summarizing sentence.
  - (b) What happens to the price of a cup of coffee? Please explain using a diagram and a summarizing sentence.
  - (c) What happens to total expenditure on cups of coffee? Please explain in a sentence.
  - (d) What happens to the price of donuts? Please explain using a diagram and a summarizing sentence.
  - (e) What happens to total expenditure on donuts? Please explain in a sentence.
8. How long did this problem set take you?