3. In the local market for Good X, there are four individual buyers: Emily, Wu, Omar, and Fernanda. The quantities that each individual buyer would be willing and able to purchase at different prices are included in the table provided.

	Quantity of Good X			
Price	Emily	Wu	Omar	Fernanda
$1	5	4	4	3
$2	4	3	4	3
$3	4	3	3	2
$4	3	2	3	2
$5	3	2	2	1
$6	2	1	2	1
$7	2	1	1	0
$8	1	0	1	0

(a) The local market for Good X has a perfectly elastic supply. Draw a correctly labeled graph for the local market for Good X with a market equilibrium price of $5. Label the equilibrium price as $5, and label the equilibrium quantity for the market with a specific value based on the data provided in the table.

(b) Assume the cost of production increases, which causes the price of Good X to increase from $5 to $7.

(i) Calculate the price elasticity of demand for Good X as the price increases from $5 to $7. Show your work.

(ii) Identify whether the demand for Good X is elastic, inelastic, or unit elastic in that range of prices.

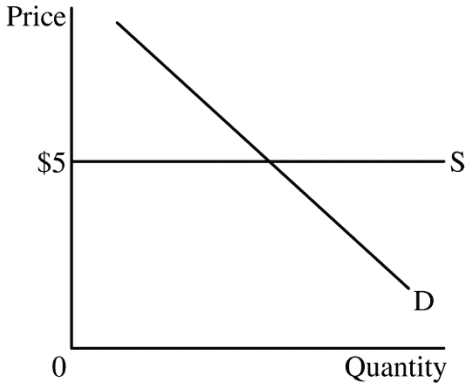
(c) Could Emily's marginal benefit for the second unit of Good X equal $4.50 ? Explain.

Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.

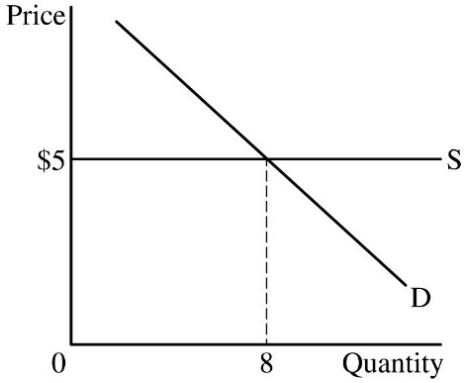
GO ON TO THE NEXT PAGE.

Question 3: Short — 5 points

(a) Draw a correctly labeled graph of the market with a downward-sloping demand (D) curve and a perfectly elastic supply (S) curve at a price of $5. **1 point**



For the second point, the graph must show the equilibrium quantity as 8 units. **1 point**



Total for part (a) 2 points

(b) (i) Calculate the magnitude of the price elasticity of demand as 1.25 and show your work. **1 point**

$$\text{Price Elasticity of Demand} = \frac{\text{Percentage Change in Quantity Demanded}}{\text{Percentage Change in Price}}$$

$$= \frac{\left|\left(\frac{4-8}{8}\right) \times 100\right|}{\left|\left(\frac{7-5}{5}\right) \times 100\right|} = \frac{50\%}{40\%} = 1.25$$

OR

$$= \frac{\left(\frac{4-8}{8}\right) \times 100}{\left(\frac{7-5}{5}\right) \times 100} = \frac{-50\%}{40\%} = -1.25$$

(ii) State that demand is elastic. **1 point**

Total for part (b) 2 points

(c)	State no and explain that Emily's marginal benefit should be greater than or equal to the price she is willing to pay ($7) for the second unit.	**1 point**
	Total for question 3	**5 points**