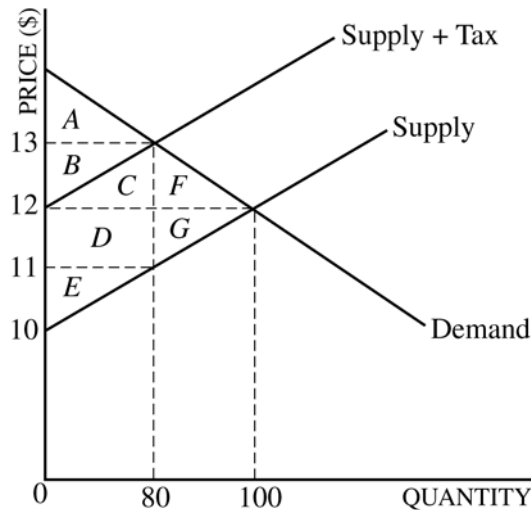


## 2005 AP<sup>®</sup> MICROECONOMICS FREE-RESPONSE QUESTIONS



2. The graph above shows the market for a good that is subject to a per-unit tax. The letters in the graph represent the enclosed areas.
- (a) Using the labeling on the graph, identify each of the following.
- (i) The equilibrium price and quantity before the tax
  - (ii) The area representing the consumer surplus before the tax
  - (iii) The area representing the producer surplus before the tax
- (b) Assume that the tax is now imposed. Based on the graph, does the price paid by the buyers rise by the full amount of the tax? Explain.
- (c) Using the labeling on the graph, identify each of the following after the imposition of the tax.
- (i) The net price received by the sellers
  - (ii) The amount of tax revenue
  - (iii) The area representing the consumer surplus
  - (iv) The area representing the deadweight loss

## 2005 AP<sup>®</sup> MICROECONOMICS FREE-RESPONSE QUESTIONS

3. P & L is a profit-maximizing shirt-manufacturing firm. The firm can sell all the shirts it can produce to retailers at a price of \$20 each. P & L can hire all of the workers it wants at a market wage of \$120 per day per worker. The table below shows the firm's short-run production function.

Number of Workers	Number of Shirts per Day
0	0
1	10
2	25
3	45
4	60
5	72
6	80
7	85
8	82

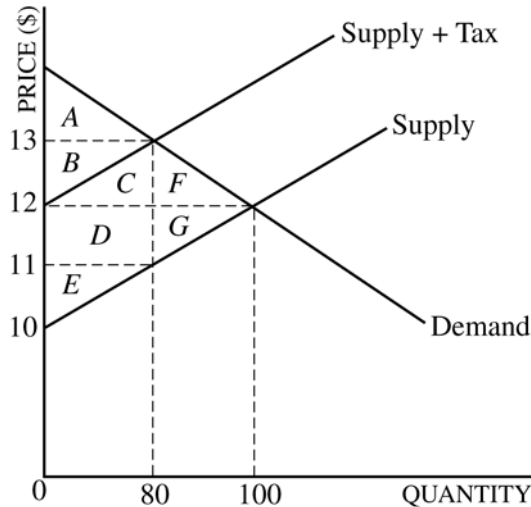
- (a) In what kind of market structure does this firm sell its output? How can you tell?
- (b) In what kind of market structure does this firm hire its workers? How can you tell?
- (c) Calculate the marginal revenue product of the third worker. Show your work.
- (d) How many workers should the firm hire to maximize profit? Explain.

**END OF EXAM**

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2005 SCORING GUIDELINES**

**Question 2**

**9 points** (3 + 2 + 4)



(a) 3 points:

- One point is earned for identifying  $P=\$12$  and  $Q=100$  units.
- One point is earned for identifying the consumer surplus before the tax,  $A+B+C+F$ .
- One point is earned for identifying the producer surplus before the tax,  $D+E+G$  or \$100.

(b) 2 points:

- One point is earned for stating that the price paid by the buyers does not rise by the full amount of the tax.
- One point is earned for a correct explanation:  $P$  increases by \$1 and the tax is \$2 per unit; or a correct elasticity explanation, such as  $S$  is not perfectly elastic, or  $D$  is not perfectly inelastic, or  $D$  and  $S$  have the same elasticities.

(c) 4 points:

- One point is earned for identifying the net price received by the sellers, \$11.
- One point is earned for identifying the tax revenue,  $B+C+D$  or \$160.
- One point is earned for identifying consumer surplus,  $A$ .
- One point is earned for identifying the deadweight loss,  $F+G$  or \$20.