

Second Exam

Write all answers in your blue book and show all work there. Return your exam and printout(s) in your blue book.

17 pts.

1) Suppose that you have the following print out for a demand function.

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	490897.9	4472748	0.109753	0.91406
Household Income	5319.469	62803.76	0.0847	0.93362
Population	-4828.93	23378.31	-0.20656	0.839134
Our Advertising Competitors'	10.56361	1.146313	9.215296	1.45E-07
Advertising	-5.77714	1.865195	-3.09734	0.007357
Our Speed	11731.94	543.4846	21.58652	1.04E-12
Competitors' Speed	-9927.54	715.3197	-13.8785	5.78E-10
Competitors' Price	134560.8	60536.47	2.222806	0.042023

- Which, if any, of these variables have unexpected signs of their coefficients? Describe.
- Which, if any, of these variables have insignificant effects ($\alpha = .05$)?
- Suggest a reason why a model like this might give unexpected or insignificant effects.

17 pts.

2) Suppose that you have two plants such that $Q_1 = 100L_1 - 3L_1^2$ and $Q_2 = 50L_2 - 2L_2^2$ and that you want total output to be 1000.

- Use a spreadsheet to find the optimal amounts of labor at each plant.
- Be sure to have your spreadsheet confirm that your solution is good by showing that the appropriate marginal measures are equal.

17 pts.

3) Suppose that $Q = 100L^{.5}K^{.5}$ and $P_L = 100$ and $P_K = 20$.

- How much of L and K to make $Q = 10000$ at minimum cost?
- If the firm is a price taking perfectly competitive firm and the market price is \$2, is the 10000 the profit maximizing quantity to produce? Why?

16 pts.

- 4) a) Write a total cost equation that has falling and then rising marginal cost.
- b) Given what you chose in part a, write an average cost equation and find the quantity where average cost is minimized. (You may want to have zero FC here, or use the solver).
- c) Given your choice above, how many plants of this type will you want to produce a quantity of 10000.
- d) Given the preceding, how high would the price have to be to make the quantity profitable?

16 pts.

- 5) We have a perfectly competitive market where the demand is $Q_d = 1000 - 2P$ and the supply is $Q_s = -490 + 98P$
- a) Find the equilibrium price.
- b) Draw a well-labeled diagram that shows these equations in one frame and in the second frame draw the cost curves for the typical firm makes a long run equilibrium.
- c) If there are 98 firms in the industry, what is the equation for one firm's supply?
- d) Given part c, what is the marginal cost equation. Carefully draw it in your diagram

17 pts.

- 6) A monopolist is looking over the next ten years. To reduce your work let's say that it only gets it's profit at the end of each 5 years and that the demand over that time is $P = 100 - 2Q$ and $TC = 100 + 10Q + 2.5Q^2$. It must choose one of two strategies. Strategy 1 is to charge the short profit maximizing price. If it does this, entry will occur and demand in the second five years will be $P = 70 - 2Q$. Strategy 2 is to charge a limit price of 70 so entry will not occur.
- a) Which strategy is better if the discount rate is zero?
- b) Which strategy is better if the discount rate is .10?

I have neither given nor received unfair aid on this test nor am I aware of anyone else who has.
