

1. Over interterm, Lucy is deciding how many hours to work each day. Given her busy schedule over the Fall semester, she must sleep 8 hours per day over the break. (sleep is not counted as leisure) She can make \$10/hr working. Assume that the income elasticity of leisure is 1.21.

a. (5) Draw the budget constraint for Lucy, recalling that she must sleep 8 hours per day.

b. (10) Suppose that given her preferences and the wage above, Lucy finds her optimum at 10 hours of leisure. Assume normally shaped indifference curves (exhibiting diminishing marginal utility). Illustrate, in a figure, a likely new optimum for Lucy if she wins a radio contest (requiring no time) for \$20. Explain.

c. (10) Now suppose that Lucy learns that because she has taken Ec 111 that she can make \$15/hour instead of \$10/hour. Illustrate a reasonable new equilibrium, given the wage change. Indicate the substitution and income effects for leisure in your figure.

d. (5) Given your answer in part c, how would Lucy's labor supply curve likely look? Please explain what determines whether the slope of that curve is relatively steep or flat.

2. Suppose you are given the following information concerning a firm in a perfectly competitive market:

Production Function:

Labor	0	1	2	3	4	5	6	7	8
Quantity	0	6	14	24	32	38	42	44	45

The wage is set at \$4.00/worker and fixed costs for the firm are \$20. The market price of the good produced is \$1.00.

a. What is the optimum number of laborers hired? Explain.

b. At the optimum you calculated in part a, what is the profit/loss level? Will the firm continue to produce in the short-run? Long-run? Explain.

c. If the many firms were somehow able to create a cartel (combine to act like a monopoly), without making calculations, describe how they would collectively determine how much to produce and set their price. What do you believe would happen to the price, quantity and overall welfare? Explain.

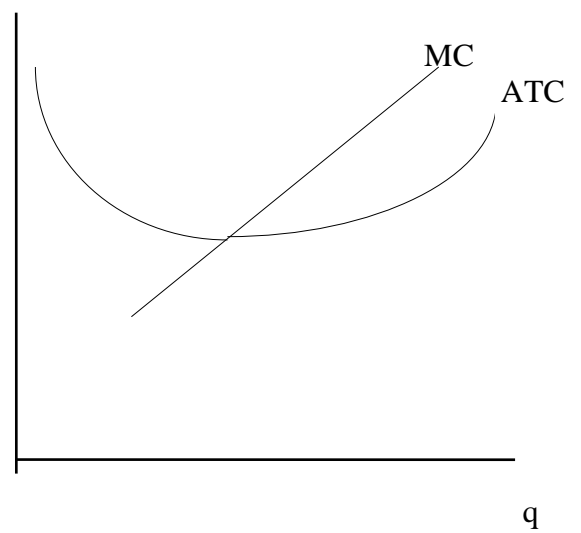
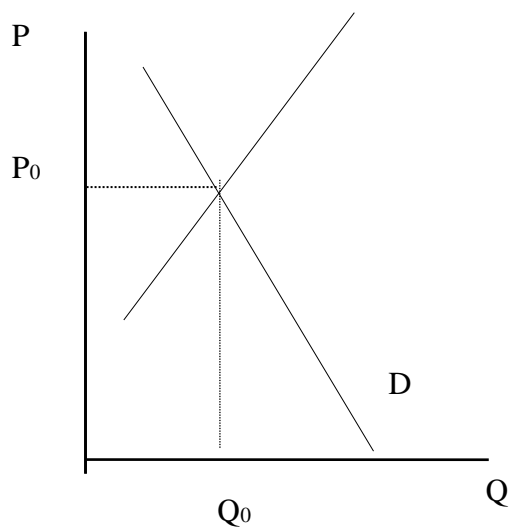
3. Consider the following graph, depicting a perfectly competitive market in the *short run*, and the position of a single firms within it:

Panel A: Market

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Panel B: Firm

\$/unit



- a. In panel B, draw in a logically possible average variable cost curve.
- b. In panel B, illustrate the profit maximizing level of output. (both graphs have the same vertical axis) Explain.
- c. Use panel B to illustrate whether the firm's profits are positive, negative or zero. Explain.

- d. Briefly explain whether this market is in long-run equilibrium. If yes, why? If no, why not? In either case, what would you expect to happen next (you don't have to draw anything for this part).

4. The perfectly competitive market for taxicabs is currently in a short and long-run equilibrium. The mayor in an effort to raise revenues increases the licensing fee to operate a taxicab by \$1000. A taxicab operator must pay the licensing fee if the taxi picks up 1 rider a day or 100 riders in a day. Analyze the effect of the increase in the licensing fee on the short-run equilibrium taxicab fare and quantity of rides; on the long-run equilibrium fare and quantity of rides.

5. Ann is a computer programmer who earned \$60,000 in 2001. But she decided to try a new career by opening a wilderness-guide service. At the end of her first year of operation, Ann submitted the following data to her accountant:

She stopped renting out her mountain cottage for \$3,500 a year and used it as her business office.

She spent \$50,000 on equipment, phone, utilities, et cetera.

She leased equipment for \$10,000 a year.

She paid \$15,000 in wages to an assistant guide.

She used \$10,000 from her savings account, which paid 5 percent interest.

She borrowed \$40,000 at 10 percent from her bank.

She sold \$160,000 worth of wilderness tours.

**(a)** Calculate Ann's explicit costs.

**(b)** Calculate Ann's implicit costs.

**(c)** What would Ann's accountant report as her profit?

**(d)** Calculate Ann's economic profit.

6. Tulip growing is a perfectly competitive industry, and all tulip growers have the same costs. The market price of tulips is \$25 per bunch, and each grower maximizes profit by producing 2,000 bunches per week. At this output, the average total costs of producing tulips are \$20 per bunch, and average variable costs are \$15 per bunch. Minimum average variable costs are \$12 per bunch.

**(a)** How much total economic profit does each grower make in the short run?

**(b)** At what price would growers decide to shut down?

**(c)** What would be each grower's total profit at the shut-down point?