

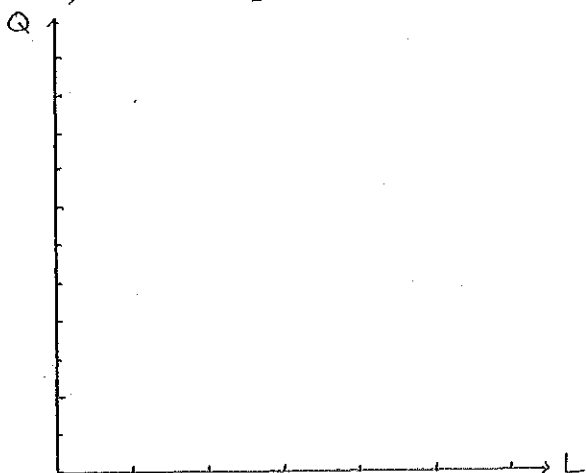
4. Subaru has a problem. What is it?
- Problems with its boxer engine forced it to recall thousands of vehicles.
 - Workers at its Indiana plant have threatened to strike for higher wages.
 - Sales have outstripped its capacity to produce cars.
 - Its failure to produce a pick-up truck has hurt its image in the U.S. market.
5. (15 pts.) Janet opens a shop in Mt. Pleasant, SC that sells Christmas items to tourists. Her sales revenues are \$400,000 per year. She incurs costs of \$200,000 for cost of goods sold, \$75,000 for wages paid to hourly employees, \$20,000 for taxes and insurance, \$25,000 for rent, and \$10,000 for utilities. Janet works full time in the shop and doesn't pay herself a salary. Formerly she worked as a secretary for the local high school earning \$45,000 per year. She and her husband have \$100,000 of their savings tied up as working capital in the business. They typically earn 5% on their investments in mutual funds.
- What are Janet's accounting profits?
 - What are Janet's economic profits? Should she continue in the business?
 - After several years, Janet decides that she wants to retire. She offers to sell the business to her sister, who is a CPA earning \$80,000 per year. Her sister evaluates the business and declares that to be a bad idea for her. Is she making a mistake? What would her economic profits be? (Assume that she would take \$100,000 out of her own savings and pay Janet for her investment in the business.)

6. The short-run average total cost curve is U-shaped because:
- AFC + AVC = ATC
 - AFC is constantly declining with output.
 - Beyond some point AVC slopes upward because of diminishing returns.
 - SRATC declines and then increases because all of the above are true.

7. (15 pts.) Labor and capital are used to produce widgets according to the production table below:

		Labor Input				
			1	2	3	4
Capital Input	1	20	40	55	65	75
	2	40	60	75	85	90
	3	55	75	90	100	105
	4	65	85	100	110	115
	5	75	90	105	115	120

- a) Draw the TP_L curve when K is fixed at 3 in the short run.

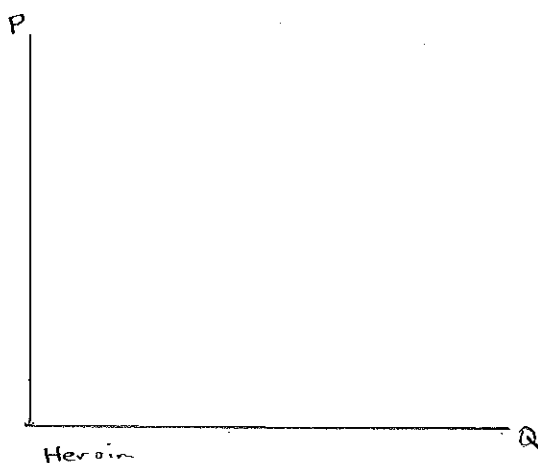


- b) Does this production process exhibit diminishing returns? Pick a set of combinations of inputs to illustrate and explain your answer.

- c) Does this production function exhibit increasing, constant, or decreasing returns to scale? Pick a set of combinations of inputs to illustrate and explain your answer.

8. (10 pts.) After retiring from the military, Mel decides to go into the chair-making business. In addition to wood, he uses capital and labor to produce wooden chairs. He is trying to determine whether he is using the right amount of tools and machinery with his workers. Currently he can produce an additional chair per hour by adding two workers to his current mix of tools and machinery. Alternatively, he could rent additional tools and machinery in combination with his current number of workers that would allow him to increase his output of chairs by one per hour. If Mel pays his workers a wage rate of \$10 per hour, and the rent he would have to pay for the additional capital is \$15 per hour, is Mel minimizing the cost of producing his chosen output? If Mel is not minimizing cost, how should he alter his input mix?

9. (10 pts.) Heroin is physically addictive and hence the demand for it by heroin addicts is very price inelastic. Many heroin addicts finance their consumption of heroin through shoplifting, petty theft, robbery, and other criminal acts. Suppose the U.S. Drug Enforcement Agency increases enforcement activities along the borders of the U.S. and increases the penalties against suppliers. In the diagram below illustrate what you think will happen to the market price of heroin and the quantity exchanged. Then explain what is likely to happen to the expense of having a heroin habit and how crime rates will be affected.



10. Product A is peanut butter. Product B is jelly. Product C is toothpaste. There are economies of scope across the production and distribution of peanut butter and jelly. There are no economies of scope across the production and distribution of either peanut butter and toothpaste or jelly and toothpaste. Hence we would say that
- a) $TC(A, B) < TC(A, 0) + TC(0, B)$
 - b) $TC(A, C) = TC(A, 0) + TC(0, C)$
 - c) $TC(B, C) = TC(B, 0) + TC(0, C)$
 - d) All of the above are true.
11. $TFC = \$2000$, $AVC = \$10$, and $ATC = \$12$. What is Q ?
- a) 1000
 - b) 500
 - c) 100
 - d) Can't be determined from the information given.
12. (10 pts.) Briefly explain five reasons why a firm might choose to vertically integrate upstream or downstream in its vertical chain of production.