Principles of Microeconomics
Professor Edward Morey
ECON 2010-300
Midterm 2
October 1, 2008
Version A?

Edward's comments on the midterm.

These questions might not be word for word what you saw on your exam.

Many of these questions and concepts will appear in one form or another on your final.

I have decided to accept two answers to question 39, see your T.A. if this affects you.

As a University of Colorado at Boulder student, I affirm that I have neither given nor received assistance on this exam.

Name: _____ Date: _____

Signature: _____

Use the following table to answer Question 1.

Table: Willingness to Sell

The table below shows the willingness to sell their tickets to the ballet *The Nutty Nutcracker* by five students who received those tickets as part of their student activity fees.

Student	Willingness to sell
Cailin	$1
Dudley	$25
Evan	$60
Francisco	$90
Grace	$100

1. (Table: Willingness to Sell) Each of these students could sell their ticket for $75. Dudley's producer surplus if he sells his ticket is :

A) $15.
B) $25.
C) $50.
D) $240.

$50: Dudley gets $75, but would have sold it for $25

2. The widget industry is competitive. Assume all Widget producers are identical. Is the following statement True or False? A permanent increase in the demand for Widgets will cause a permanent increase in each firm's profits.

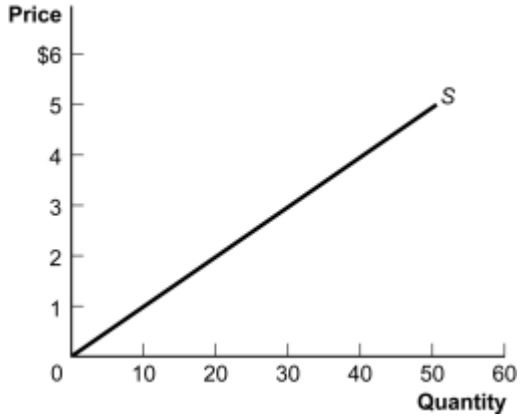
A) True and there will be more firms in the industry
B) True and there will be the same number of firms in the industry
C) False and there will be more firms in the industry
D) False and there will be the same number of firms in the industry.

Note that all firms are identical. In the new LR equilibrium the firms in the industry will just be making a normal rate of return, so there will not be a permanent increase in each firm's profits.

The increase in demand will cause entry until excess profits are eliminated. So the new LR equilibrium price will equal the original equilibrium price.

Use the following graph to answer questions 3-4.

Figure: Supply of Ice Cream Cones



3. (Figure: Supply of Ice Cream Cones) If the price of ice cream cones is $2, producer surplus will equal:
A) $20.
B) $40.
C) $60.
D) $80.

Producer surplus is the firm's revenues for selling 20 units at $2 ($40), minus the minimum they would have to be paid to sell the 20 units.

The minimum the firm would have to be paid to supply the first 20 units is $20 (the area under the supply curve up to 20 units). So the producer surplus is $20 the area above the supply curve and below $2

4. (Figure: Supply of Ice Cream Cones) If the price of the good increases from $3 to $4, producer surplus will increase by:
A) $5.
B) $15.
C) $25.
D) $35.

Many student got this wrong, many more than question 3. It is a more complicated question.
At a price of $3 producer surplus is =45=.5(3x30).
At a price of $4 producer surplus is =80=.5(4x40)
The difference is $15

Graphically it is?

5. Who won the presidential election?
A) John McCain
B) Barack Obama
C) Mickey Mouse
D) Bob Barr

6. The short run is defined as a:
A) period of time less than 1 year.
B) period of time less than 6 months.
C) time period in which some inputs are considered to be fixed in quantity.
D) time period in which some inputs are fixed, but it cannot exceed 1 year.

7. A fixed input is one:
A) that exists in nature and there is only so much of it.
B) that can be used for one thing only.
C) that can never produce more or less in any time period.
D) whose quantity cannot be changed in the decision-making period.

8. The change in total output resulting from a 1-unit increase in the quantity of an input used, holding the quantities of all other inputs constant, is:
A) average cost.
B) average product.
C) marginal cost.
D) marginal product.

9. Consider the competitive widget industry where all firms are identical. Which graphical shift most likely represents what happens to the market supply curve for widgets when more firms enter the industry?
A) Supply curve from the point where profits are non-negative shifts to the right parallel
B) Supply curve rotates to the right from the point where marginal cost equals average variable costs.
C) Supply curve from the point where profits are non-negative shifts right but not parallel.
D) There is not enough information to tell

The wording of A) leaves a bit to be desired. The supply curves shift right

Draw a picture.

Use the following to answer questions 10-11.
Table: Costs of Producing Bagels

Quantity of bagels (per period)	Total variable costs		Total fixed costs	
0	$0.00	$0.10		
1	0.20	0.10		
2	0.30	0.10		
3	0.35	0.10		
4	0.45	0.10		
5	0.60	0.10		
6	0.80	0.10		
7	1.05	0.10		
8	1.35	0.10		

10. (Table: Costs of Producing Bagels) The average total cost of producing 7 bagels is; the total cost of producing 7 bagels is:

A) $0.16; $1.15.
B) $0.17; $1.25.
C) $0.20; $1.10.
D) $1.15; $1.16.

The total cost of producing 7 bagels is $1.15 (7(1.05+.10)). $1.15/7=.16

11. (Table: Costs of Producing Bagels) The marginal cost of producing the sixth bagel is:
A) $0.10.
B) $0.15.
C) $0.20. the increase in total variable cost because the 6th bagel was produced
D) $0.80.

12. Average variable cost is:
A) the firm's variable cost per unit multiplied by the output.
B) total variable cost divided by output.
C) the difference between average total cost and average fixed cost.
D) the difference between total cost and total variable cost.
E) B and C
F) B and D

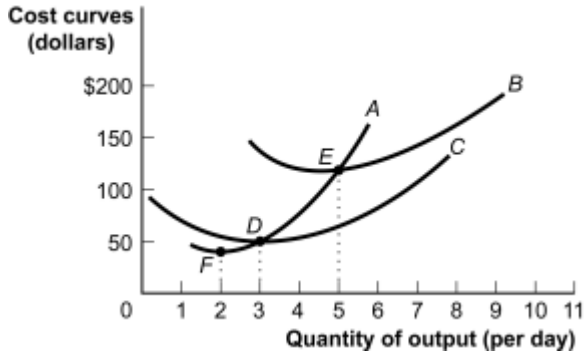
Draw a graph

13. Marginal cost decreases over the range of increasing marginal returns and increases over the range of diminishing marginal returns.
A) increases; decreases
B) decrease; increases
C) is constant; increases
D) increases; is constant

This an important relationship many of you had trouble with.

Draw a SR production function then flip it

Use the following to answer question 14.
Figure: Short-Run Costs



14. (Figure: Short-Run Costs) The vertical difference between curve *B* (Average Total Cost) and curve *C* (Average Variable Cost) at any quantity of output is:
A) marginal cost.
B) fixed cost.
C) average fixed cost.
D) average variable cost.

ATC=AFC+AVC, so ATC-AVC=AFC

Use the following information to answer Question 15
Consider two worlds: A and B. In both worlds Los Angeles has only two beaches: North Beach and South Beach: The current flows along the coast from north to south. The two beaches are next to one another, and little used (most residents of L.A. don't like going to the beach)

In World A the two beaches are identical.
In World B, South Beach is highly preferred to North Beach.

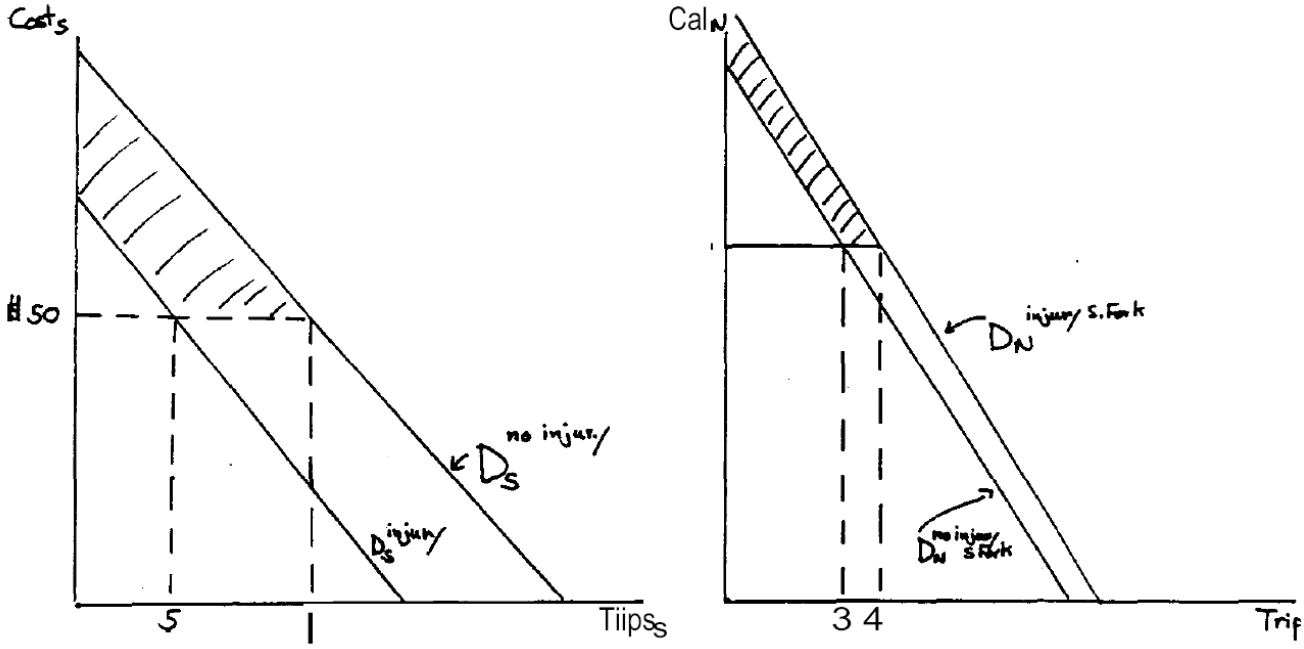
South Beach gets trashed by raw sewage.

This question is based on the notes about travel cost models and the consumer's surplus associated with polluting a site – material I lectured on. I thought it was a very easy question but many of you got it wrong. What I lecture on is what I think is most important for you to understand.

15. L.A. beach goers are more damaged (lose more consumer surplus)
A) in World A
B) in World B

Cost of visiting each beach are pretty much the same: they are next to one another.
In World A, South Beach has a close substitute. So, if it is trashed by sewage, beach goers will simply switch to North Beach, so incur little loss. In contrast, in World B there is not close substitute, so the users will suffer more.

Consider how demand functions shift if $Catch_S \downarrow$



16. A university where in the long-run the cost per student declines as the number of students increases is experiencing _____.
A) economies of scale.
B) diseconomies of scale.
C) increasing opportunity costs.
D) scale reduction.

17. Marginal revenue of a profit-maximizing firm:
A) is the slope of the average revenue curve.
B) equals the market price in perfect competition.
C) is the change in quantity divided by the change in total revenue.
D) is the price divided by the changes in quantity.

The profit maximizing competitive firm set p = MC. But since the firm is a price-taker, p =MR, so MR=p when the competitive firm is maximizing profits.

A lot of people got this one wrong. It is basic stuff.

18. In the short run, a perfectly competitive firm produces output and earns an economic profit if:
A) $P > ATC$.
B) $P = ATC$. No profits, only a normal rate of return
C) $P < AVC$. Losing money, will produce zero output if true
D) $AVC < P < ATC$. Losing money but would lose more if firm produced zero.

19. Economic profits in a perfectly competitive industry induce entry, and losses induce exit .
A) exit; entry
B) entry; entry
C) entry; exit
D) exit; exit

20. Economists identify the satisfaction a person derives from the consumption of goods and services as:
A) happiness.
B) usefulness.
C) utility.
D) pleasure.

Discuss whether pleasure or happiness are good terms.

Use the following to answer questions 21-22.

Table: Utility

Units	0	1	2	3	4	5	6	7
Total utility	0	20	35	45	50	50	45	35

21. (Table: Utility) Marginal utility is zero for the _____ unit.
A) first
B) second
C) third
D) fifth

22. (Table: Utility) Marginal utility first becomes negative at the sixth unit.
A) first
B) second
C) fifth
D) sixth

23. On the planet Bunga Bunga there are two currencies: red money and blue money. You have 500 units of red money and 16 units of blue money. There are two goods on Bunga Bunga: pizza and Bud Light (with lime). A Bud light costs 30 units of red money and 2 units of blue money. A pizza cost 10 units of red money and 1 unit of blue money. When you buy the goods you have to pay both the red money price and the blue money price. Consider the following statements

I) In terms of blue money the opportunity cost of one Bud Light is 2 pizzas
II) In terms of red money the opportunity cost of one pizza is 1/3 of a Bud Light
III) In terms of blue money the opportunity cost of one pizza is ½ of a Bud light
IV) In terms of red money the opportunity cost of one pizza is 3 Bud Lights

This is the lecture on two constraints: money and time.

In terms of red money the opportunity cost of one pizza is 1/3 of a bud light. So, in terms of red money the opportunity cost of a bud light is 3 pizza.
In terms of blue money the opportunity cost of one pizza is 1/2 of a bud light. So, in terms of blue money the opportunity cost of a bud light is 2 pizza.
So, I is correct
II is correct
III is correct
IV is false The opportunity cost of one pizza is 3 bud lights, not 1/3

How many of the above statements are correct?

A) 0
B) 1
C) 2
D) 3
E) 4

24. Which of the following is (are) true?
A) A budget constraint limits what a poor consumer can spend, but there is no similar constraint on rich people.
B) Utility maximization means achieving the greatest utility from a given budget.
C) In consumer choice theory, we assume all commodities are “goods”.
D) All of the above are true.

Commodities can be “goods” or “bads”. No one can buy everything.

Use the following to answer questions 25-27.

Exhibit: Tom's Budget Constraint

Tom is trying to decide how to allocate his $50 budget for CD purchases and DVD rentals when the price of a CD is $10 and the price of a DVD rental is $5. His budget constraint is:

$10*CD + 5*DVD = 50$

25. (Exhibit: Tom's Budget Constraint) Which of the following combinations of CD purchases and DVD rentals lie outside Tom's budget line? (Tom cannot afford this combination.)

A) 5 CDs and 8 DVDs costs $90
B) 5 CDs and 0 DVDs costs $50
C) 0 CDs and 5 DVDs costs $40
D) 2 CDs and 5 DVDs costs $45

26. (Exhibit: Tom's Budget Constraint) If we measure CD purchases on the horizontal axis and DVD rentals on the vertical axis, the vertical intercept of Tom's budget line is:

A) 10.
B) 5.
C) 2.
D) $^1/_2$.

Draw the graph: DVD on vertical. If he spends all of his money on DVDs ($50) he can buy 10 of them.

27. Assuming diminishing marginal utility in the consumption of both commodities A and B and that the consumer is operating on his budget line, if a consumer purchases a combination of commodities *A* and *B* such that $MU_A/P_A = 50$ and $MU_B/P_B = 30$, to maximize utility, the consumer should buy:

A) less of both *A* and *B*.
B) more of both *A* and *B*.
C) more of *A* and less of *B*.
D) less of *A* and more of *B*.

This was covered in the book. I will talk about it more next week. At the current situation the consumer is getting more utility from the last dollar spent on A than on the last dollar spent on B. So wants to spend more on A and less on B.

28. Rent controls set a price ceiling below the equilibrium price, therefore:
A) quantity supplied exceeds the quantity demanded.
B) quantity demanded exceeds the quantity supplied.
C) a surplus of rental units will result.
D) poor people will be helped.

Draw a graph
Some poor people might be made better off, but not poor people in general. Some rich people will also be better off.

29. If the marginal product of labor always declines, there is *always* some level of labor where adding more labor will cause total output to decline.
A) True
B) False

If total output declines when more labor is added, the marginal product of labor is negative. So, the question is asking whether declining marginal product of labor always leads to a negative marginal product of labor. The answer is no.
Draw an example graph

30. Choose the phrase that best completes the sentence: A market commodity is
A) a commodity paid for by taxes and provided by the government
B) a commodity where you, as the consumer, can control the per-unit price
C) a commodity what you are constrained to consume in some fixed amount
D) a commodity where you, as a consumer have no control over the per-unit price, but get to choose the amount to consume.

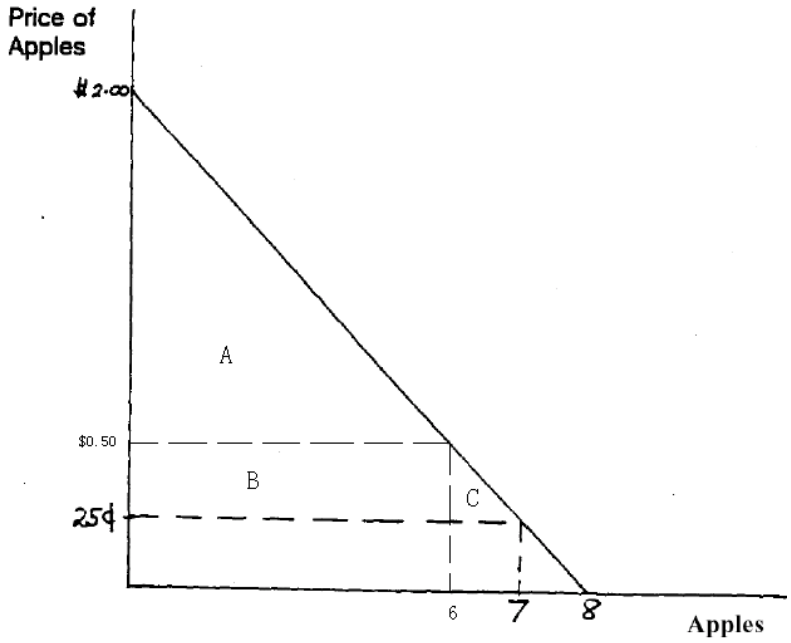
Market and non-market commodities were defined in the lecture notes.

31. Choose the phrase that best completes the sentence: A non-market commodity is
A) a commodity paid for by taxes and provided by the government
B) a commodity where you, as the consumer, can control the per-unit price
C) a commodity what you are constrained to consume is some fixed amount
D) a commodity where you, as a consumer have no control over the per-unit price, but get to choose the amount to consume.

Some non-market commodities are paid for by taxes and provided by the government, but not all of them. National defense being an example. Your wife is a non-market commodity that is not provided by the government.

Answer the following questions based on the graph below.

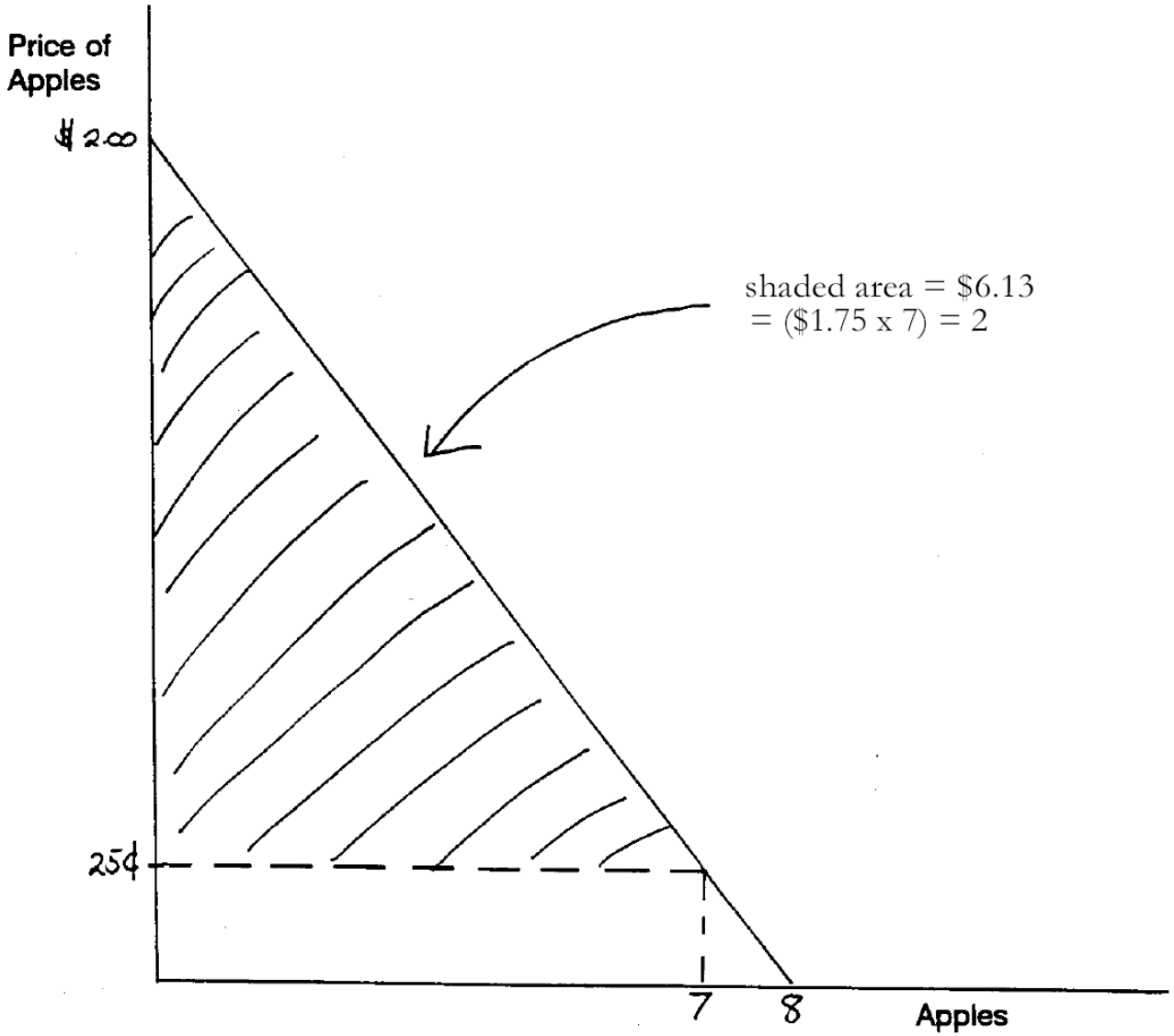
Phil's Estimated Demand for Apples



The first half of the questions is answered in the lecture notes.

What is Phil's WTP to Have Apples Available

at 25¢?



32. How much will Phil pay for the privilege of buying apples at 25 cents a apple? At 50 cents an apple?
A) $12.25 and $9
B) $6.12 and $9
C) $12.25 and $4.50
D) $6.12 and $4.50

So, he will pay $6.12 to buy at 25 cents. At 50 cents he buys 6 units. His consumer surplus at 50 cents is ($2-.5)6/2=$1.50(6)/2=$4.50

From the notes you knew the answer to the first part was $6.12. The second part has to be less than the first part so the answer has to be D
78 people left this question blank. Come to class or read the lecture notes.

If you got 32 incorrect, you likely got 33 incorrect.

33. How much will Phil pay not to have the price of apples raised from 25 cents to 50 cents per apple?

The difference in WTP for apple availability at 25 cents minus WTP for apple availability at 50 cents. $6.12 -$4.50 = $1.62

A) $3.25
B) $2.88
C) $7.75
D) $1.62

34. How much would Phil pay to get the price of apples reduced from $25 cents an apple to zero?

A) area C
B) $1.50
C) $2.00
D) $1.87

His WTP for apple availability at 25 cents is $6.12
His WTP for apple availability at 0 cents is 2(8)/2=$8
So the different is $1.87

A lot of people got questions 32-34 (whose about Phil's apples) incorrect. They were covered in detail in the lecture notes.

35. Which of the following statements best captures how environmental economists view reducing pollution?

A) Pollution is a bad, so efficiency requires that all pollution be eliminated. Definitely not.
B) There are benefits and costs to reducing pollution
C) Regulating or taxing firms to influence how much they pollute is inefficient. The free market should be left to its own devices.

Economists want to reduce pollution as long as the marginal benefits of reducing pollution exceed the marginal costs. To reduce it more than that would be inefficient (cost more than it is worth). So, the efficient amount of pollution is definitely not zero (you would have to stop breathing, pollution comes out of your mouth). Regulations are not all bad. Regulations are often used to correct market failures.

Use the following information to answer Questions 36-37

Fred's misguided sports parent questions.
Fred is a cross-country skier who races on the Boulder Nordic Junior Race Team. And her father, an economist, would like to pay her $1/mile for every mile she skies on Saturday. Think of Fred as a firm producing a product what she can sell for $1 per unit. Fred's only input is her labor; her parents buy all of her ski equipment for her, drive her to the mountain etc. Her only concern is determining how many miles to ski.

Assume Fred's average cost curve for producing ski miles is always increasing

36. Which of the following conditions guarantees that her average cost curve for producing ski miles is always increasing, rather than U-shaped as are many of the the average cost functions in KW.
A) Fred has no fixed costs
B) The average product of Fred's time in the production of ski days is always decreasing
C) Fred gets slower and slower the more time she skis, and she has no fixed costs.
D) Fred gets slower and slower the more time she skis.

"No fixed costs" is not sufficient – even if there are no fixed inputs, average costs might always increase. For a longrun average cost curve can be U-shaped: there are not fixed costs in the longrun. If would be U-shaped if Fred's marginal produce increases before it starts to decrease.

37. Assume Fred is a profit-maximizing cross-country skier. Now, if Fred values her time at $5 an hour and Edward is willing to pay her $2 per mile to ski, when should she stop skiing?

This is the question Erin said she would ask when we working on the Fred lectures. Remember I asked her to suggest a question.

The opportunity cost of Fred's time is approximately 8.3 cents a minute (5/60).So, she will stop skiing when she is earning less than 8.3 cents a minute.

When Fred is skiing 2.5 miles an hour she is covering approximately .041 miles a minute (2.5/60). Skiing .041 miles earns her approximately 8 cents an hours. So, 2.5 miles per hour is the profit maximizing point for Fred. More skiing would lower her total profit.

While this is a difficult question, most people got it right.

A) After 4 hrs
B) After she has enough money to buy a cell phone
C) When she can no longer ski at least 2.5 miles per hour
D) When she can no longer ski at least 8 miles per hour

38. Assume widgets can be produced in many different ways but always using only two inputs: labor and capital. Which of the following statements best describes a firm's production function for producing widgets

A) It identifies the different combinations of labor and capital that will produce the same amount of widgets. True but not a definition of the production function
B) It identifies the number of widgets that can be produced with different amount of labor and capital. It identifies the max number.
C) It identifies the productivity of labor and capital in the production of widgets. Also true but not the definition.
D) It identifies the maximum number of widgets that can be produced with different amounts of labor and capital

39. Consider the short run where labor is the variable input. The marginal cost of production is declining. Which statement could explain why?

A) In the short run, marginal cost cannot decline. No, it can decline.
B) The marginal product of labor is increasing
C) The marginal product of labor is decreasing This would make MC increase, not decrease.
D) The amount of capital is fixed.
E) More than one of the above.

On the score sheet the answer is E. I will accept either B and E as correct answers. See your T.A. if this is an issue for you.

40. The deadweight loss from a government-imposed tax comes about because:
A) The number of transactions in the market is reduced.
B) Some mutually beneficial transactions do not take place
C) sellers get a quota rent.
D) A & B
A and B basically say the same thing. The tax precludes some efficiency increasing trades.

Draw a graph.

41. In Economics, which of the following phrases best describes what it means to have preferences?
A) People like some goods more than others
B) There is diminishing marginal utility in the consumption of goods
C) The individual has a ranking of consumption bundles
D) You prefer some stuff more than other stuff.
A, C and D are all correct statements. B is typically true but not always true.
C is the best description of how economists define preferences.

42. Consumers are price-takers
A) Always
B) Only when we buy M&Ms and jeans
C) Never
D) For most goods

43. You are an economic consultant for Farmer Perk, who produces raw cotton. One day he gives you the following cost data. The market price for a pound of cotton is $6. What is Farmer Perk's total revenue at the current market price when he maximizes his profits?

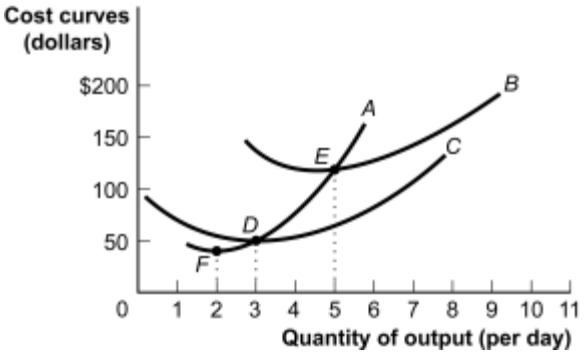
Output	Fixed cost	Variable cost
0	$ 5	$ 0
1	$ 5	$ 1
2	$ 5	$ 2
3	$ 5	$ 6
4	$ 5	$ 13
5	$ 5	$ 22

A) $6
B) $18
C) $24
D) $30
Marginal cost is the increase in variable costs so MC is $1 for the first unit, $1 for the second unit ,$4 for the third unit, $7 for the forth unit, and $9 for the fifth unit. Perk will choose to produce and sell three units (he would lose money on the forth unit).

His total revenue is $18

His profits are 18-11=7

44. Which of the following statements *best* describes swoosh-shaped marginal cost curves? (Like curve A in the following graph)



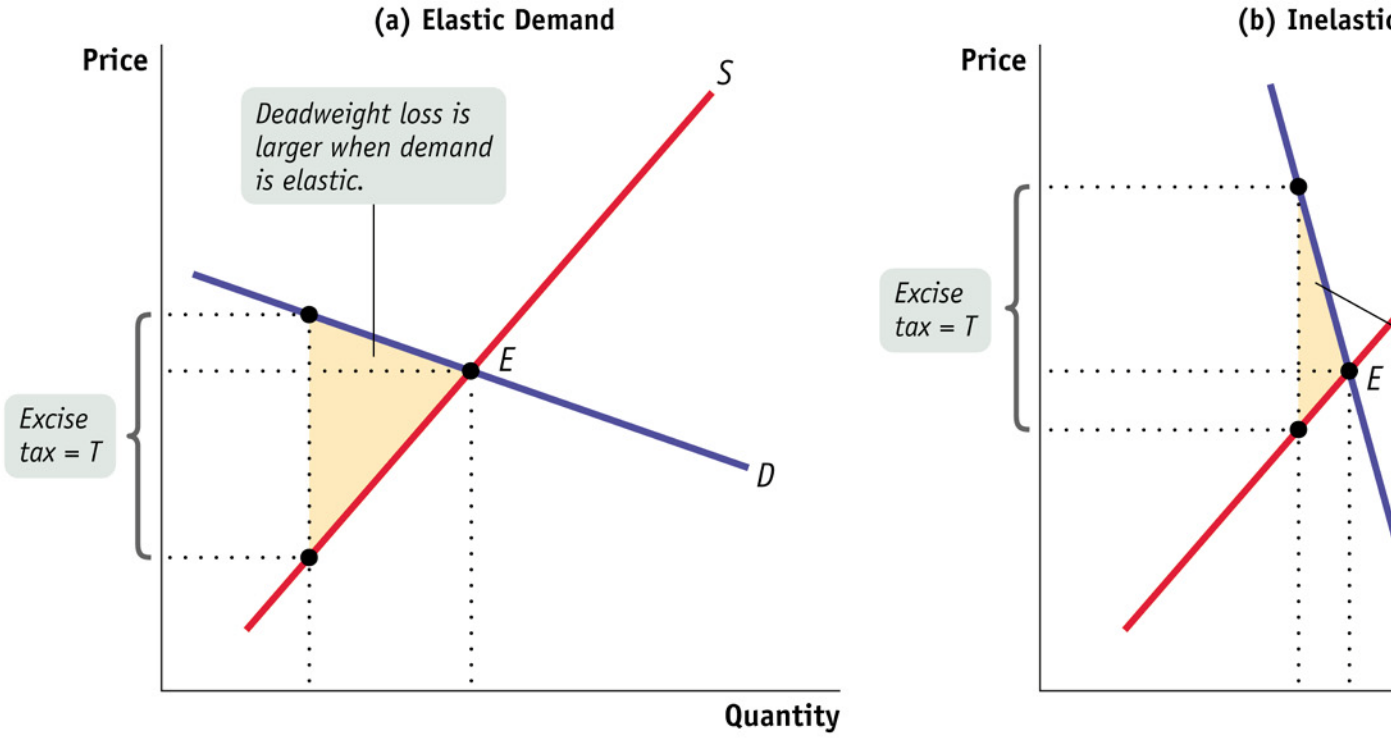
A) Specialization of a variable input (workers) can lead to increasing returns at first. Once there are enough workers to permit specialization, however, diminishing returns set in.
B) Total cost fluctuates--it rises and falls--in response to each additional worker hired.
C) Average total cost and average variable cost curves are U-shaped, and marginal cost curves have similar shapes. This statement is sometimes correct, but does not explain why they have the shape they do.
D) Compared to the average total cost curve, the diminishing returns effect is stronger on a marginal cost curve. I find this statement nonsensical.

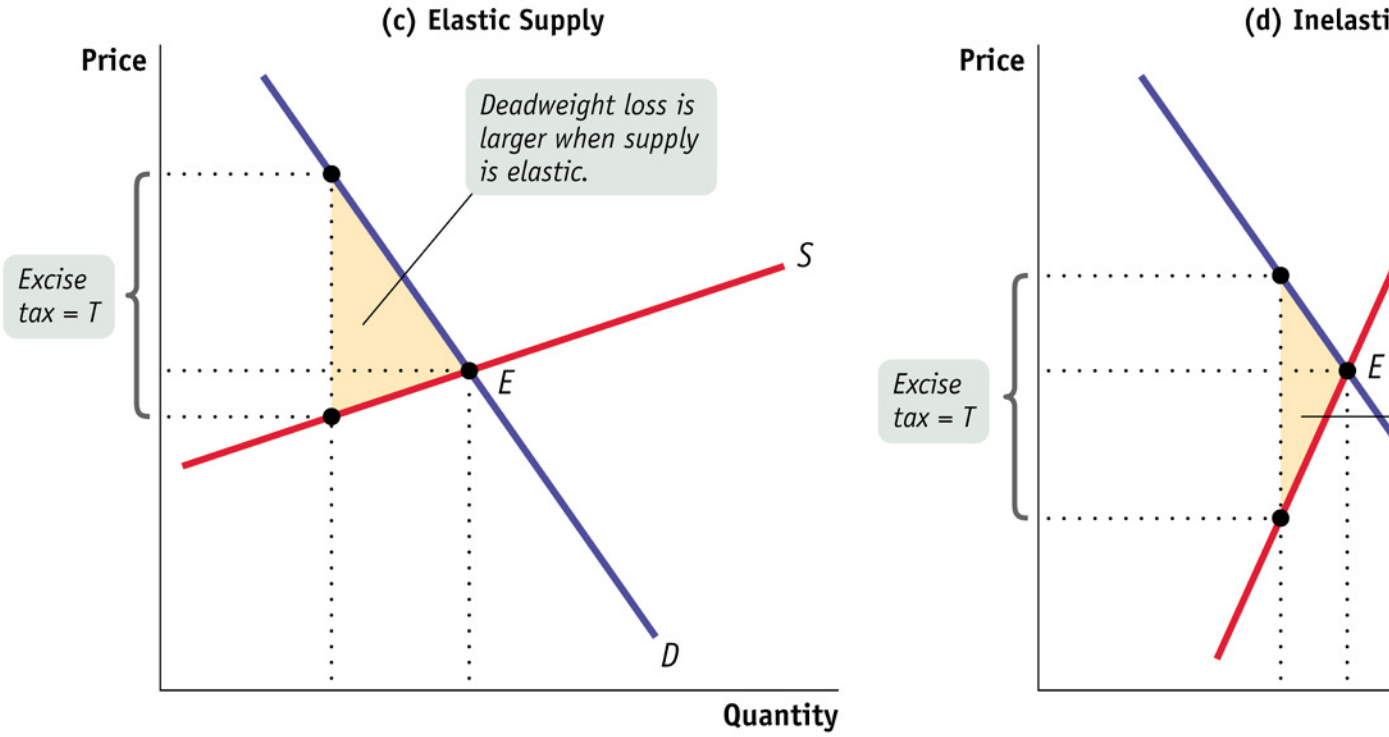
45. For a U-shaped average total cost curve, when the quantity of output produced is LESS than the output that leads to the minimum average cost?

So the question is asking what is going on when average cost is declining.
I. Marginal cost is less than average total cost. True.
II. Marginal cost is greater than average total cost. false
III. Average total cost is rising. false
IV. Average total cost is falling. true

A) I only
B) II only
C) IV only
D) I and IV

46. Consider the market for four products: A,B,C and D. The demand for product A is perfectly elastic. In Market B the price elasticity of demand, as an absolute value, is 3. In Market C the price elasticity of demand, as an absolute value, is 0.25. Finally, the demand for product D is perfectly inelastic. If you wanted to lessen the efficiency costs of a specific government-imposed tax, upon which market would you impose the tax?
A) Market A
B) Market B
C) Market C
D) Market D





When the tax is imposed there is a loss of consumer surplus and producer surplus.

This is not dead-weight loss.

While the tax causes a drop in consumer's and producer's surplus in this market it also raises revenues for the government, which can be used to increase utility.

So, dead-weight loss is loss in CS and PS minus the tax revenues raised.

The more unresponsive producers and consumer are to the tax, the smaller the dead-weight loss: the inefficiency is caused by a change in behavior and when demand and supply are inelastic, the market output is little affected by the tax.

Most people either got 47 wrong or did not answer the question.

47. For a perfectly competitive firm that is maximizing profits in the long run
   A) P = MC
   B) MR = AVC+AFC this says MR=average total costs, which is true. Not that AFC=0 in the longrun
   C) MC = ATC true
   D) P=AVC true
   E) All of the above

48. Who won the Nobel Prize in Economic Sciences in 2008?
   A) Paul Krugman
   B) Alan Greenspan
   C) Edward Morey
   D) Henry Paulson

49. An increase in the consumer's income will do all of the following, *except*:
A) shift the budget line away from the origin.
B) increase the horizontal intercept.
C) increase the vertical intercept.
D) change the slope of the budget line.

Draw a graph

50. Which of the following statements is true about Average Fixed Cost (AFC)?
   A) AFC is always less than Average Variable Cost no
   B) AFC is always less than Marginal Cost no
   C) AFC is always decreasing
   D) AFC is constant across all quantities of output Impossible