

Econ 001: Midterm 1
October 13, 2007

Instructions:

- **This is a 60-minute examination.**
- **Write all answers in the blue books provided. Show all work. Use diagrams where appropriate and label all diagrams carefully.**
- **Write your name and your Recitation Instructor's name in every blue book that you use.**
- **This exam is given under the rules of Penn's Honor system.**
- **All blue books, blank or filled, must be handed in at the end of this exam. No blue books may be taken from the room.**
- **The use of Programmable Calculators is in violation of Departmental rule. It is strictly forbidden!**

The Midterm has 2 parts.

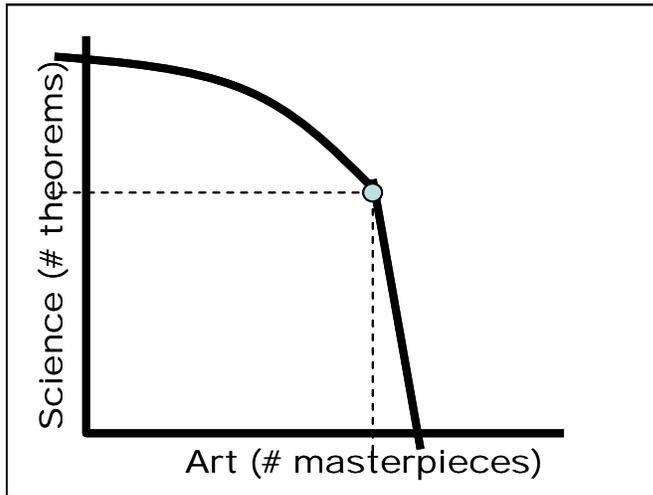
Part 1 consists of **8** multiple-choice questions. Please use the first page of a blue book to record your answers.

Part 2 consists of 2 short answer questions. Please use a separate blue book for each.

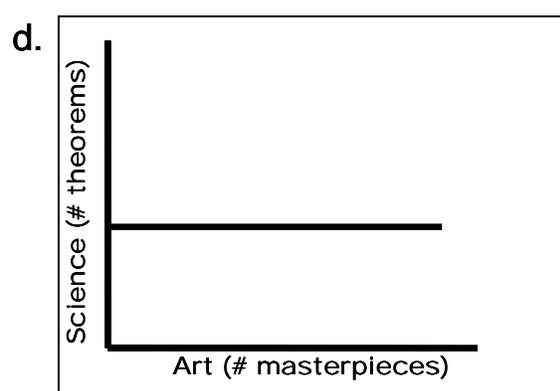
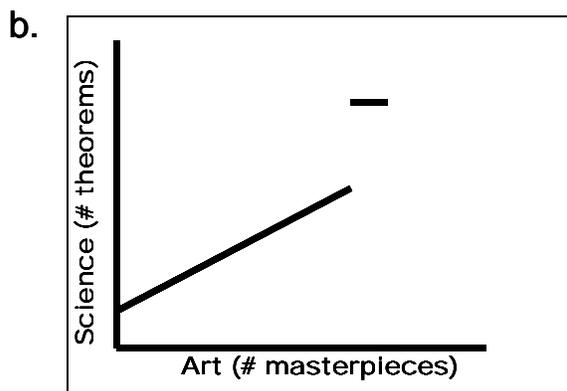
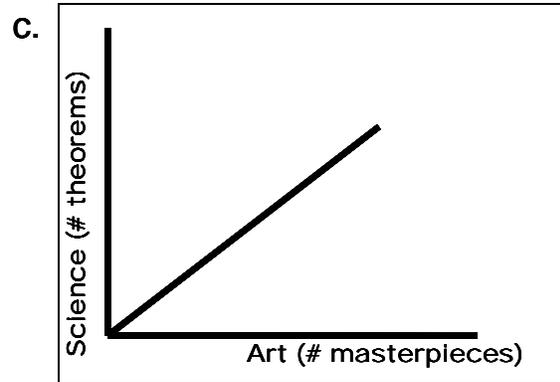
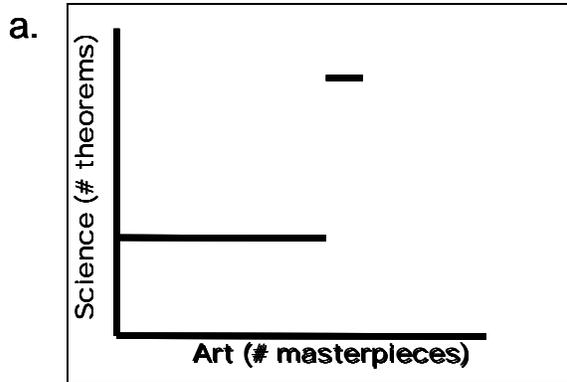
Part I: Multiple Choice Questions (8 points each/32 points total):

1. John works as a doctor, earning \$80,000 a year. He is extremely happy since that is exactly what he always wanted to be. John could alternatively work as a janitor, earning \$20,000 per year and getting no other pleasure from the job. Which of the following statement is true:
 - a. The opportunity cost for John of being a doctor is 0, since that is his preferred job.
 - b. The opportunity cost for John of being a doctor is -\$60,000 a year, since he would earn less if he chose to be a janitor.
 - c. The opportunity cost for John of being a doctor is \$20,000 a year.
 - d. Since we cannot measure John's happiness we cannot evaluate the opportunity cost of being a doctor.

2. Man has 1000 units of genius that he can use to produce art masterpieces and science theorems. Man's PPF has the following shape:



The graph of the marginal cost of Art (in terms of theorems) will be:



3. The country of Sweetland can produce candies and shoes. We know that Sweetland exports candies to the rest of the world and import shoes. If we know the Production Possibilities Frontier (PPF) of Sweetland is linear (a straight line), what can we say about its Consumption Possibilities Frontier (CPF)?
 - a. We know nothing about the CPF since we do not know the world market price of shoes per candy.
 - b. We know the maximum amount of shoes that Sweetland can consume.
 - c. We know the maximum amount of candies that Sweetland can consume.
 - d. Both B and C are correct.

4. Due to a brilliant invention of a shoe machine in Sweetland, it is now the most productive in both goods around the world. Assume that Sweetlanders want candies and shoes and no other product. Which of the following is true?
 - a. Sweetland should not trade with other countries since it is the best in both goods; trade creates no benefit for its citizens.
 - b. Sweetland should export both goods to the rest of the world since it is the best in both goods.
 - c. Sweetland should export either shoes or candies but not both.
 - d. None of the above is true.

5. Suppose that hot dogs and hamburgers are substitutes. Which of the following could lead to a fall in the equilibrium quantity of hamburgers?
 - a. An increase in the price of spices that are only used in the production process of hot dogs.
 - b. A technological improvement in the production of hot dogs.
 - c. An increase in the number of people who choose to take careers in the hamburger making industry.
 - d. A successful advertising campaign for hamburgers.

6. A common stereotype is that women buy more shoes than men. Suppose that you have the following information concerning the supply and demand for shoes (all units are in pairs):

Women's supply and demand for shoes:

$$Q_s(w) = -10 + P(w)$$

$$Q_d(w) = 50 - 2 P(w)$$

Men's demand for shoes:

$$Q_d(m) = 30 - P(m)$$

The supply curve for men's shoes is not given, but you are told that at equilibrium, $P(w) = P(m)$. That is, it turns out that the price of men's shoes is the same as the price of women's shoes. Which of the following is true?

- a. Women buy more shoes than men.
- b. Men buy more shoes than women.
- c. They buy the same quantity of shoes.
- d. There is insufficient information to answer this question.

7. The Annenberg Center is trying to maximize revenues for their performances. Currently there are many empty seats and you are hired as a consultant on ticket prices. You find that faculty members have an inelastic demand for the shows but that student demand is elastic. You will recommend to:

- a. Lower the price of tickets for faculty only.
- b. Lower the price of tickets to students only.
- c. Lower the price of tickets to both faculty and students.
- d. Raise the price of tickets to both faculty and students.

8. Which of the following events NEVER triggers a shift in the demand for good X in the usual supply and demand graph?

- a. A change in individual's income for a normal good.
- b. A change in the price of good X
- c. A change in the price of a substitute good when the demand for good x is inelastic.
- d. A change in the price of a complementary good and the demand for good X is elastic.

Answer Key

Part I

1. c
2. b
3. c
4. c
5. b
6. c
7. b
8. b

Part II: Short Answer Questions (34 points each/68 points total):

Please use a separate blue book for each question.

Explain answers carefully using graphs where appropriate. Your grade depends on your explanation as well as your answer: so show your work!

Q1.

Suppose that Dubai can only produce two products: Software and Hotels. Suppose further that it has two groups of residents, of equal size, Techies and Servers.

Their weekly productivities are given in the table below:

	Software (units per week)	Hotel (units per week)
Techies	4	4
Servers	2	8

- a. Draw Dubai's weekly PPF with software on the horizontal axis.

Answer:

Kinked ppf with points at (0, 12), (4,8), (6,0)

Points: 8

General shape: 2

Each point: 2 points.

- b. Dubai currently produces 4 Hotel units. Assuming it is efficient, how many Software units is it producing? Who is producing the Hotel units? Who is producing Software units?

**Answer: To get 4 Hotels Servers must be spending half their time on this job which leaves them time to make 1 unit of software. Total Software is thus $4+1=5$
Dubai is producing less than 8 hotels implying that Servers are producing both Hotels & Software, while Techies are producing only software.**

Points: 4

4 hotels, 5 software units: 2 points (1 for answer, 1 for explanation)
Hotels by Servers: 1 point
Software by Techies & servers: 1 point

c. The world trade ratio is 4 units of Hotel for one Software unit. Add Dubai's Consumption Possibilities Curve to your graph in part a.

Answer:

It is a straight line from (6,0) to (0,24).

At this price ratio Techies will specialize in Software as they have lower opportunity cost for software than the international price ratio. Servers have the same opportunity cost as the rest of the world which is why the CPF is the same as the PPF in part of the region.

$6 \times 4 = 24$.

Points: 8

Straight line: 1 points

Correct slope: 1 point

Starting at (6,0): 2 points

Ending at (0,24): 2 points

Making sure it is not inside PPF: 2 points

d. Is Dubai better off with trade? Explain.

6 points

We will accept 2 answers here:

- 1. No, as they prefer their original point (see partb) to any new possible point.**
- 2. Yes, as now they can consume at points that were not possible before.**

If just state: always gains from trade: 3 points

e. Assume trade is no longer available.

Since jobs related to software development pay better, this created an income inequality between Techies and Servers. To reduce this problem, Dubai established a training program in software development. All Servers were required to attend and no Techies were admitted.

As people differ in abilities to learn, the program was more useful for some than others. So, now there are 2 types of Servers (each half the size of the original group) with different weekly productivities as given below:

	Software (units per week)	Hotel (units per week)
More productive	2	4
Less Productive	1	4

Draw the new weekly PPF for Dubai with software on the horizontal axis.

Answer:

A ppf with 2 Kinks. Points at (0, 12), (4,8), (6,4), (7,0)

Points:8

General shape:4

Each point: 1 point.

Q2. Keep your answers short! You only need a sentence or two per section.

The current equilibrium price of a bushel of corn is \$1.45 to the consumer and 2.50 to the farmer producing corn. Suppose that the difference is due to government subsidies that are paid to the farmers on a per bushel basis.

a. Graph the supply and demand for corn assuming supply is upward sloping and demand is downward sloping. Clearly mark the equilibrium price of corn to the consumer and producer and the subsidy paid by the government.

Answer:

Expecting a typical S&D graph with an extra shifted supply curve S', shifted out due to subsidy.

The price to the consumer is at the intersection of D&S'. The price to the producer is at that quantity (Qs), but reading of the original supply curve. The subsidy ($2.5 - 1.45 = \$1.05$) is the vertical distance between S & S'

Points: 8

S & D: 1 point

S': 1 point

Pd=1.45 market correctly: 2 point

Ps=2.5 market correctly: 2 point

s:2 point.

b. Mark on your graph the consumer surplus producer surplus generated by the market of corn.

Answer:

C.S.: area bounded by D, P=1.45, & Qs

P.S.: area bounded by S, p+2.50 & Qs.

Points: 6

3 for each (2 for correct answer, 1 for explanation).

c. Is there Dead Weight Loss in this market? If so mark it on the graph in part b.

Answer: There is DWL. Triangle bounded by S & D between Qe & Qs.

Points: 4 (2 for correct answer, 2 for explanation).

d. What are the criteria we should use to evaluate subsidies?

Answer:

2 answers will be accepted here:

a. Efficiency & equity

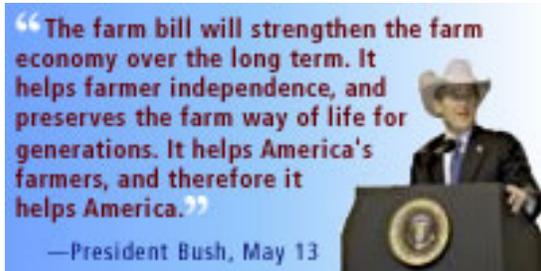
b. Tax Incidence & extent of DWL

Points: 6

3 each for either set of answers.

Note: students who did not specify criteria but answered part e instead get 6 points for d & e combined.

e. Evaluate the following quote of President Bush that he gave after he signed into place an extension of the subsidies analyzed above.



Answer:

The subsidies increase C.S. & P.S. and so may be accepted as equitable, but they are inefficient as they cause DWL.

Points: 4

2 points for stating that subsidies cause DWL and thus inefficient.

2 points for linking previous answers to issues of equity or tax incidence. A correct answer could be either that it is or that it is not equitable (why should consumers benefit? for example)- what we are looking for understanding of link between your answer in parts d & e.

f. How would your answer to part e change if the demand for corn was completely inelastic?

Answer:

In this case the consumers are the only ones who benefit from the subsidy as the price to producers does not change. There is no DWL. In this case the subsidy seem inequitable though it not inefficient.

Points: 6

4 for no DWL

2 for equity consideration.