

HOMWORK 2

Intermediate Microeconomics EC 308-004
October 2, 2007

Name: _____

by writing my name i swear by the honor code

Read all of the following information before starting the Assignment:

- You are allowed to work together on the homework. However, when it comes time for you to write up the solutions, you are required to do this on your own.
- Show all work, clearly and in order, if you want to get full credit. I reserve the right to take off points if I cannot see how you arrived at your answer (even if your final answer is correct).
- Justify your answers algebraically whenever possible to ensure full credit. When you do use your calculator, sketch all relevant graphs and explain all relevant mathematics.
- Circle or otherwise indicate your final answers.
- Please keep your written answers brief; be clear and to the point. I will take points off for rambling and for incorrect or irrelevant statements.
- This assignment has 5 problems and is worth 100 points. It is your responsibility to make sure that you have all of the answers!
- This assignment is due next Tuesday, October 9 in class.
- Good luck!

1. (20 points) PROBLEM 1: This question has 2 parts:

a. (10 pts) PART A: An individual sets aside a certain amount of his income per month to spend on his hobbies, collecting wine and collecting books. Given the information below, illustrate both the price-consumption curve associated with changes in price of wine and the demand curve for wine.

<i>Price Wine</i>	<i>Price Book</i>	<i>Quantity Wine</i>	<i>Quantity Book</i>	<i>Budget</i>
\$10	\$10	7	8	\$150
\$12	\$10	5	9	\$150
\$15	\$10	4	9	\$150
\$20	\$10	2	11	\$150

b. (10 pts) PART B: An individual consumes two goods, clothing and food. Given the information below, illustrate both the income-consumption curve and the Engel curve for clothing and food.

<i>Price Clothing</i>	<i>Price Food</i>	<i>Quantity Clothing</i>	<i>Quantity Food</i>	<i>Income Income</i>
\$10	\$2	6	20	\$100
\$10	\$2	8	35	\$150
\$10	\$2	11	45	\$200
\$10	\$2	15	50	\$250

2. (*20 points*) PROBLEM 2: This problem has two parts:

a. (*10 pts*) PART A: Using graphs, show and discuss the income and substitution effects for a normal good.

b. (*10 pts*) PART B: Using graphs, show and discuss the income and substitution effects for an inferior good. Without drawing, how are these effects different for a Giffen good?

3. (20 points) PROBLEM 3: Maurice has the following utility function:

$$U(X, Y) = 20X + 80Y - X^2 - 2Y^2 \quad (1)$$

where X is his consumption of CDs with a price of \$1 and Y is his consumption of movie videos, with a rental price of \$2. He plans to spend \$41 on both forms of entertainment.

a. (10 pts) PART A: Find Maurice's marginal utility with respect to X and with respect to Y .

b. (10 pts) PART B: Determine the number of CDs and video rentals that will maximize Maurice's utility. What is his utility at these levels? (Hint: Use the Lagrangian method)

4. (20 points) PROBLEM 4: Suppose two investments have the same three payoffs, but the probability associated with each payoff differs, as illustrated in the table below:

Payoff	Probability (Investment A)	Probability(Investment B)
\$300	0.10	0.30
\$250	0.80	0.40
\$200	0.10	0.30

a. (5 pts) PART A: Find the expected return and standard deviation of each investment.

b. (5 pts) PART B: Jill has the utility function $U = 5I$, where I denotes the payoff. Which investment will she choose?

c. (5 pts) PART C: Ken has the utility function $U = \sqrt{5I}$, where I denotes the payoff. Which investment will he choose?

d. (5 pts) PART D: Laura has the utility function $U = 5I^2$, where I denotes the payoff. Which investment will she choose?

5. (20 points) PROBLEM 5: Consider the information in the table below, describing choices for a new doctor. The outcomes represent different macroeconomic environments, which the individual cannot predict:

Job Choice	Outcome 1 Prob.	Outcome 1 Income	Outcome 2 Prob	Outcome 2 Income
Work for HMO	0.95	\$100,000	0.05	\$60,000
Own practice	0.2	\$250,000	0.8	\$30,000
Research	0.1	\$500,000	0.9	\$50,000

a. (15 pts) PART A: Compute the expected income and standard deviation of income for each job choice.

b. (5 pts) PART B: If the doctor is risk-averse, which job should she accept? Explain.

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