

MIDTERM EXAM

ECON 210
PROFESSOR GUSE

Instructions. You have 3 hours to complete the exam. There are a total of 75 points on the exam. The exam is designed to take about 1 minute per point. You are allowed to reference a single page of notes, 2-sided. You may *not* use any other notes, books or aids of any kind, be they human, electronic or mechanical. Calculations may be left in expression form for full credit. There is space provided for each question. If you need additional space, you may write on the back of the pages. Please justify and explain your answers where needed and show your work. (Or at least enough so that the grader can figure out how you arrived at your answers.) Please write your name on the exam itself and record the time you started and time you finished. Finally, please turn in your cheat sheet with your exam.

Name:

Date and Time Started:

Date and Time Finished:

Pledge:

Date: October 14, 2008.

(1) SHORT ANSWER (25 Points)

(a) (5 points) $(x_1, y_1) \sim (x_2, y_2)$ while $(x_1, y_1) \succ (\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2})$. Which standard assumption on consumer preferences does \succsim violate? Briefly explain.

(b) (5 points) McBarry faces constant prices for hockey pucks, minivans and Nascar tickets. He must give up 10 hockey pucks for each minivan he buys and half of a minivan for each Nascar ticket. At what rate must he give up hockey pucks for Nascar tickets?

(c) (3 points) If $u(x_1, x_2)$ represents Molly's preferences for goods 1 and 2, construct another utility function which does just as good a job of representing Molly's preferences.

- (d) (3 Points) Assume the decision maker can borrow and lend at rate r . The present value of a \$200 benefit in 4 years followed by a \$300 cost in 7 years is equal to -----.
- (e) (3 Points) Write down a utility function for some one who always spends $\frac{1}{3}$ of his income on cheeseburgers and $\frac{2}{3}$ of his income on everything else.
- (f) (3 Points) Write down a utility function for some one who consumes water and other things. Make it so that their demand for water has an income elasticity of zero for high enough income levels above a certain threshold and income elasticity of 1 for income below that threshold.
- (g) (3 Points) Low interest rates tend to favor projects with what kind of time structure of costs and benefits?

- (2) (15 Points) Cookie Monster (CM) has nice rational preferences for cookies and milk. The price of cookies is \$1 each. The price of milk is \$1 per glass. When Cookie Monster (CM) is given \$300 in cash, he chooses to buy 250 cookies. On the other hand, if you give CM \$200 in cash and \$100 in milk vouchers, he spends all of his cash on cookies and drinks 100 glass of milk. In this case, what can you say about CM's *marginal rate of substitution* of milk for cookies? In other words, what is CM's MRS at the point (cookies, milk) = (200,100)? Explain using a diagram. Be sure to interpret your answer.

- (3) (15 Points) Sally only eats cheese and corn in the form of home-made cheetos - which she make herself from a very exacting recipe. Hence she has *perfect complements* preferences for cheese and corn. Briefly describe the income and substitution effects of a price decrease in corn.

The total effect on Corn is [positive] [negative] [zero].

The total effect on Cheese is [positive] [negative] [zero].

The substitution effect on Corn is [positive] [negative] [zero].

The substitution effect on Cheese is [positive] [negative] [zero].

The income effect on Corn is [positive] [negative] [zero].

The income effect on Cheese is [positive] [negative] [zero].

Explain using a diagram.

- (4) (20 Points) Joe expects to live for two periods. Joe has current income equal to \$2000 and will receive income in the next period equal to \$1000.
- (a) (2 Points) If the interest rate were $r_0 = .25$, he would save \$400. How much will Joe have to consume in the next period?
 - (b) (2 Points) If the interest rate were $r_1 = .10$, he would save only \$200. How much will Joe have to consume in the next period?
 - (c) (8 Points) If we think of $r_0 = .25$ as the original interest rate, which effect dominates along the current consumption axis as we lower the interest rate to $r_1 = .10$? Substitution Effect or Income Effect ? Explain using a diagram.
 - (d) (8 Points) Joe claims that he prefers to live in the world where interest rates are higher. Do you believe him? If so, explain. Would this always be the case for some exhibiting his demand behavior? If not, prove him wrong. You may want to refer to the diagram you drew for the previous part.

EXTRA SHEET. Use for any problem.