

Economics 3550
Intermediate Microeconomics
Professor Rous
Mid-Term Exam 1
February, 23 2005

Name _____

Clearly label all graphs for full credit and please write legibly; I cannot grade what I cannot read.

The number of points each question is worth is noted in parentheses. There is a blank page at the end of the exam that you can use as scratch paper.

Multiple Choice and Short Answer

1. (6) A recent study found that bicycle helmet laws did not significantly reduce the number of head injuries suffered by bicycle riders. Explain why an economist might not be surprised by the outcome. What, non-monetary, price is affected by the law?

2. (6) Kaylee has been deciding whether to buy a new Honda Accord or a Toyota Camry. The price of the Honda is \$25,000 and the price of the Toyota is 23,000. At those prices she is really torn. She likes the Honda, but is only willing to pay \$1500 more for it (i.e. if the Honda were even \$500 cheaper, she would buy the Honda). She buys the Toyota.

The next day, the Honda dealer calls and offers her the Accord for \$21,000. She takes the Toyota back to the dealer and tries to return it, but the Toyota dealer will only give her \$20,000 for the car.

As Kaylee's wise and rational economics student friend, what is your advice?

After she buys the Toyota, the \$23,000 she spent is sunk. So now she has to compare the choices she is now faced with. At this point, the Honda will only cost her an additional \$1000 if she sells the Toyota for \$20,000 and buys the Honda for \$21,000. The fact that she will lose the \$3000 on the Toyota is irrelevant.

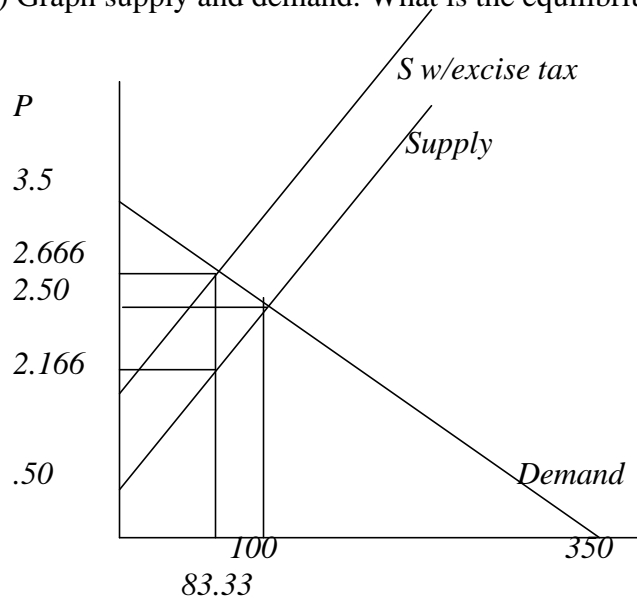
3. Demand for gasoline in Dallas can be illustrated by the following demand curve:

$$P = 3.5 - .01Q$$

- Supply can be illustrated by the following supply curve:

$$P = .5 + .02Q$$

- a. (8) Graph supply and demand. What is the equilibrium price and quantity of gasoline.



- b. (8) To raise money for the Governor's re-election campaign, the state has imposed a \$.50 excise tax on gasoline. Illustrate the tax on your graph. What will be the new market price and quantity for gasoline? How much of the economic incidence will fall on buyers and how much on sellers?

Buyers will pay \$.166 of the tax and sellers will pay \$.333 of the tax.

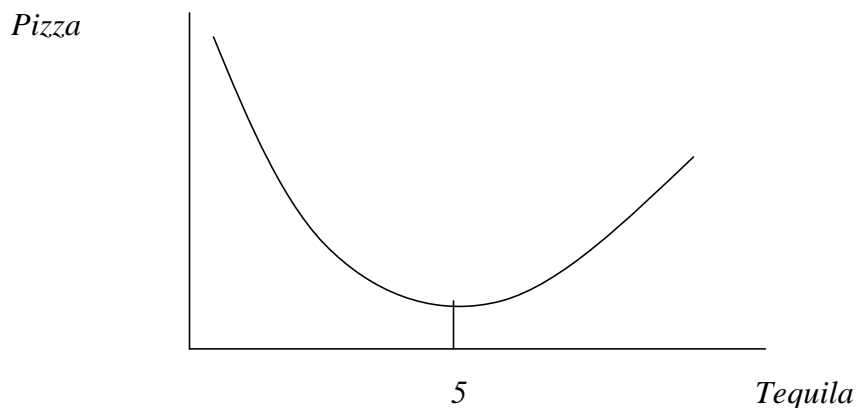
4. (6) In 2004, the price of 64oz. jar of peanut butter was \$5 and in 2005 it is \$7. In 2004 the price of a Trek bicycle was \$400 and in 2005 it is \$500. What was the relative price of peanut butter in 2004 and in 2005?

Price of PB in 2004 = .0125 bicycles

Price of PB in 2005 = .014 bicycles

- 5.(6) You buy two goods, slices of pizza and shots of Tequila. Your preferences are as follows: the more pizza you eat the better off you are, however, shots of tequila only make you better off until you have had five of them. That is, shots of Tequila are considered a good for shots 1 to 5. Subsequent shots, 6 to ∞ , make you worse off (they are “bads” in econ-speak).

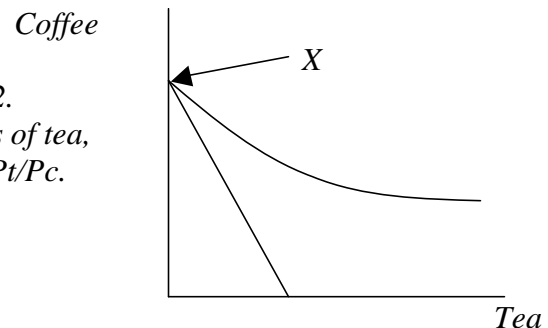
Putting Slices of Pizza on the vertical axis and Shots of Tequila on the horizontal axis, draw one of your indifference curves and describe why it looks the way it does.



When both pizza and tequila are considered goods, the only way to be equally well off with more tequila is to eat less pizza. However, once 5 shots of tequila have been consumed, tequila makes you worse off. As a result, when you consume more tequila, the only way to be as well off is with MORE pizza, not less (since pizza is still a good thing).

6. (8) Give an example (including a graph) of a consumer's optimal bundle such that the bundle is a “Corner Solution.” At this optimal bundle, what is true about the relationship between prices and the MRS that is not true for virtually all other optimal bundles?

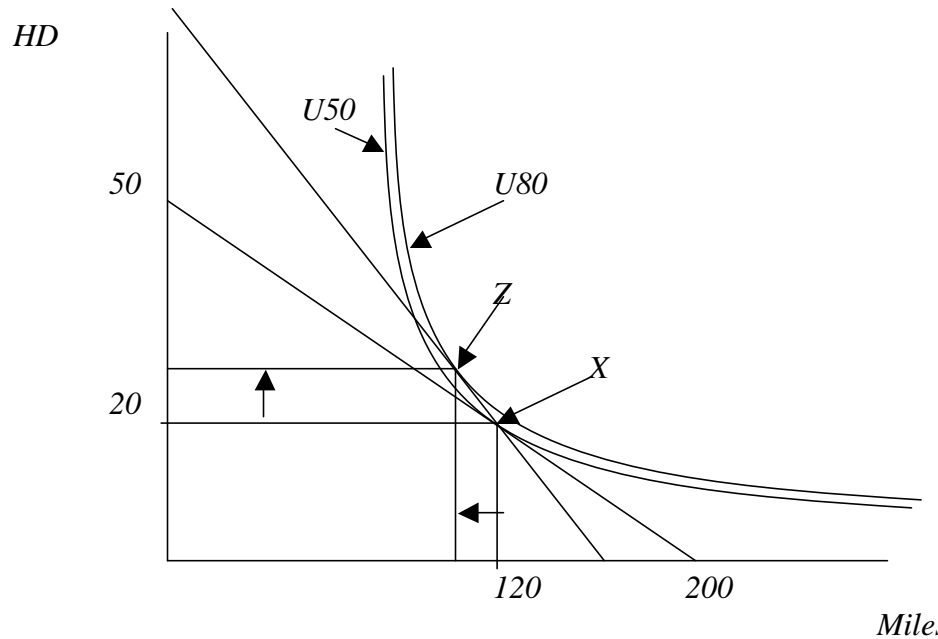
Assume the $P_c = .5$ and the $P_t = 1$ so the slope of the budget constraint is 2. Even at point X, $MRS < 2$. Since the person cannot consume negative amounts of tea, their optimal bundle will be at point X with $MRS < P_t/P_c$.



7. In order to control his desire to take the family car out, Prof. Rous and his wife give their son Nathan a \$50/month allowance, but then charge him \$.25 per mile driven. He spends the money on two goods, hot dogs, which cost \$1 each and driving. At these prices, Nathan drove 120 miles in January and he bought 20 hot dogs. In February, to curtail his driving even more, they charged him \$.50 per mile but raised his allowance to \$80.

Draw the appropriate graph and use it to verbally explain whether:

- (10) Nathan is better off in February than he was in January.
- (4) Will Nathan drive more miles or fewer miles in February?



In January, Nathan drives 120 miles and eats 20 hot dogs, he consumes bundle X. With the increase in his allowance and higher cost of driving, he can still consume bundle X, but now at bundle X, $MRS < P_m/P_{hd}$ (because the price of driving risen). This means he can move to a higher indifference curve (and is better off) by consuming more hot dogs and driving less in February.

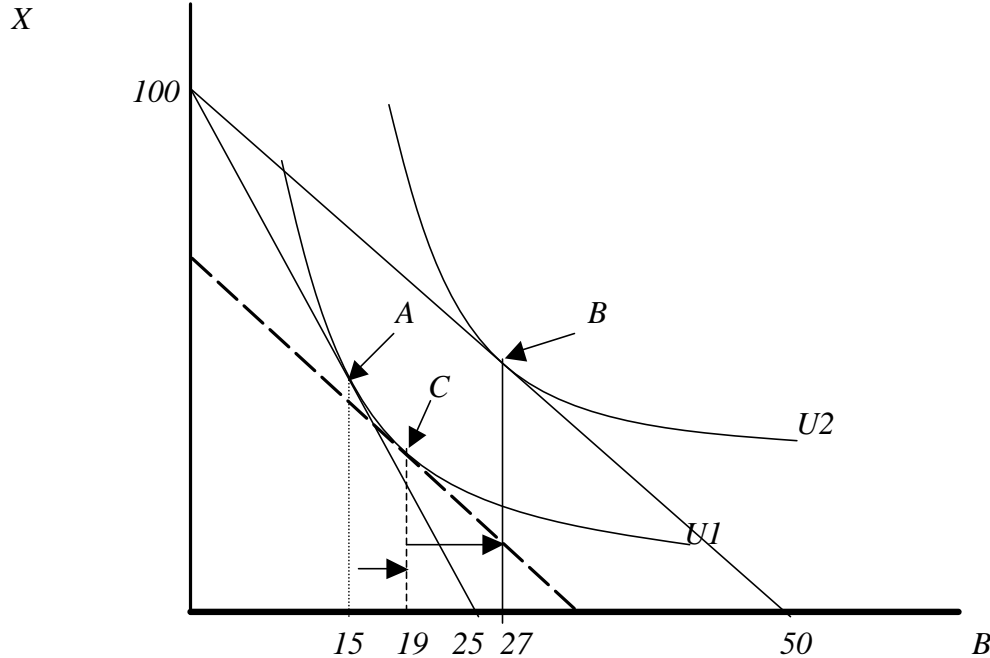
8. Given Megan's current consumption of slices of cheese cake and power bars, her MRS (i.e. Marginal Value) of power bars is 2 slices of cheese cake. The market price of power bars is \$2 and the market price of slices of cheese cake is \$3.
- a. (8) In as much detail as possible, please explain how you know she is not maximizing utility and how she can be made better off by consuming a different quantity of power bars and cheese cake.

Right now, Megan's $MRS = 2$ and the price ratio is $2/3$. While she would be willing to give up 2 slices of cheese cake for one power bar, she would only have to give up $2/3$ of a slice of cheesecake to afford one more power bar. If she foregoes two slices of cheesecake, she will have enough money to buy 3 power bars, more than the 1 power bar she would need to keep her equally happy.

- b. (4) If Megan's marginal utility from a slice of cheese cake is 10, what is her marginal utility from consuming a power bar?

Since $MRS = MU_p/MU_c$, if $MRS = 2$ and $MU_c = 10$, then MU_p must = 20.

9. Luke has an income of \$100. The price of bread, P_b , is \$4 and the price of other goods, P_x , is \$1.
- a. (12) Now the price of bread has dropped to \$2. On the graph below, illustrate the change in Luke's consumption of Bread when the price changes. Assume bread is a **NORMAL** good. Verbally explain and describe the income and substitution effects. Explain what about the graph and the substitution and income effects makes bread normal.



Luke first consumes at bundle A. When the price of bread falls, there are two effects on consumption. First, when the price of bread falls, bread becomes relatively cheaper than it was before. Even if Luke were to be forced to remain on his original indifference curve, U_1 , his optimal bundle would change. Since $MRS = P_b/P_x$ at any optimal bundle, when P_b falls, the MRS at an optimal bundle on U_1 will be to the right of bundle A (since indifference curves get flatter to the right). This substitution of bread for X along U_1 as a response to a decrease in P_b is the substitution effect. The effect should be measured as the increase in bread consumption from 15 to 19.

Second, with cheaper bread, Luke has more purchasing power. The effect of an increase in purchasing power is similar to the effect of an increase in income. Since bread is a normal good, when Luke feels richer, he consumes more bread. The income effect is the change in bread consumption from 19 to 27. Since this change is positive when the price of bread fell, bread is a normal good.

b. (4) After the price change, what is Luke's MRS? How do you know?

MRS = 2 b/c it is equal to P_b/P_x at an optimal bundle.

10. (10) “One of the positive benefits of the insurgency in Iraq is that defeating it will require hiring thousands of able-bodied Iraqi men and women to provide security. These jobs will provide thousands of Iraqi families with the money they need to buy necessities like food and shelter. In fact, given that this increase in demand for goods will help employ farmers, shop-keepers and those in the construction industry, in a perverse way you could say the insurgency will help to rebuild Iraq!” - Congressman Ira Nisnext

Explain how Hazlitt would respond to the above quote.

Hiring these people to provide security takes them away from being otherwise productive. Because of this, the damage of the insurgency is doubled. Not only does it destroy valuable resources, but it takes others away from being productive.

Scratch paper page. Please turn in with exam.

Name _____