

Economics 3550
Intermediate Microeconomics
Professor Rous
Mid-Term Exam 1
September 28, 2005

Name _____ **KEY** _____

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.

Read each questions carefully. I am not trying to trick you, but realize that it is easy to misread a question and think I am asking something I am not.

Multiple Choice and Short Answer

1. (10) Bob and Wendy have each bought tickets for the Violent Slugz concert (to make things easier, assume they do not know each other). Bob bought his ticket through Ticketmaster for \$40 and Wendy bought her ticket on E-bay for \$20. At the time each bought their tickets, they believed that parking would be free. Instead, right before leaving for the show, they discover that parking at the concert hall was going to cost \$30 per person. They each find out about the parking cost right before leaving for the show. For each person, can you say whether they definitely will go to the concert, might go, or definitely will not go to the concert? Explain how you know for each.

From the prices they paid, we can only tell that for Bob, the concert was worth at least \$40 and for Wendy, the value was at least \$20. Once they buy the tickets, that cost is sunk. Now that parking is \$30, Bob will certainly go since we already know the concert is worth $>$ \$30 to him. For Wendy, we do not know whether the concert is worth more than \$30 or less than \$30 so we do not know if she should go. In either case, the price they paid for the concert is sunk, and therefore, irrelevant.

2. (12) True/False/Uncertain. With the recent shut down of oil refineries along the Louisiana/Texas Gulf coast, the supply of gasoline will be reduced. However, it is likely that the high price of gasoline will cause demand to fall and the price should drop as a result.

False, the quantity demanded will fall, but demand will not.

True/False/Uncertain. We should also expect to see the supply of bicycles increase. Please explain.

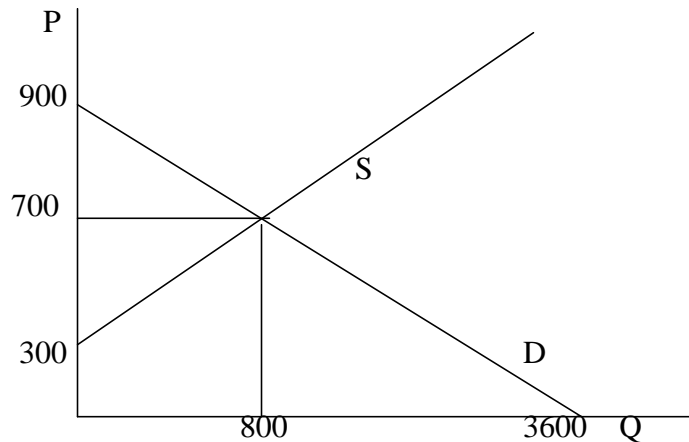
False, with higher price of gasoline, people will have a higher demand for bicycles causing the quantity supplied, but not the supply, of bicycles to increase.

3. The following are the supply and demand for housing in Denton (note that these are demand curves instead of the usual inverse demand curves we usually use):

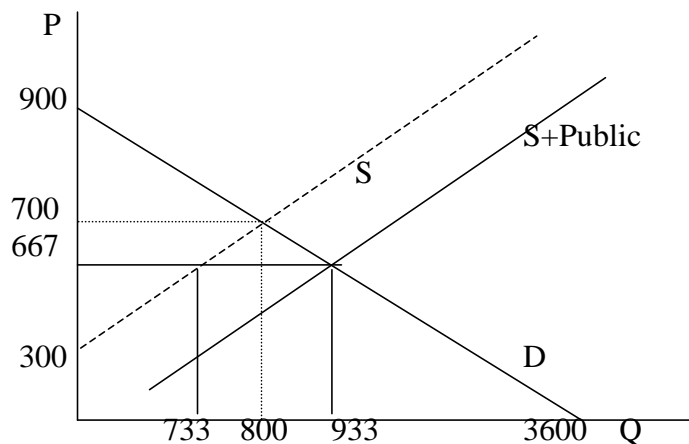
$$D: Q = 3,600 - 4P$$

$$S: Q = -600 + 2P$$

- a. (12) Please graph the supply and demand curves and indicate the relevant intercepts and the equilibrium P and Q .



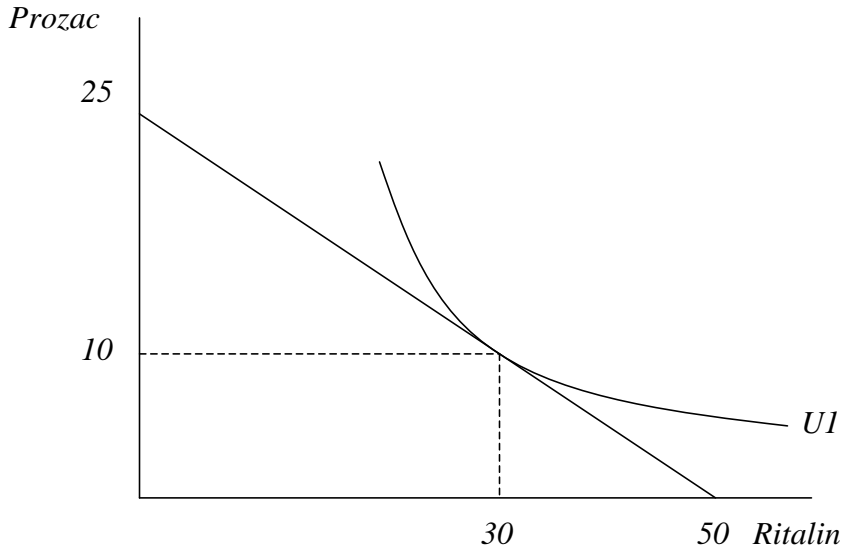
- b. (10) The city has determined that 200 of the city's families are homeless. To remedy the situation, they decide to build 200 housing units that will be rented on the open market (anyone can apply to live there). Using the graphical framework from above (you may want to redraw it below), demonstrate the effect on the number of housing units available in Denton. Will the plan to build 200 units eliminate the homeless problem (you may assume no one moves in or out of Denton as a result of the housing plan).



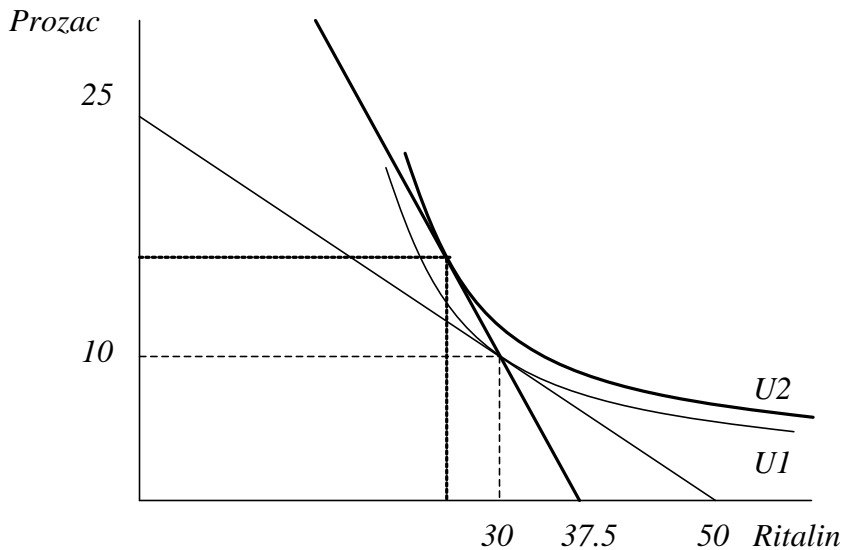
The extra supply of housing will cause the price to fall to \$666.67. So the Q s by the market will drop to 733. The total amount of housing units available to be 933, so the homeless problem will not be solved.

4. Say Tom Cruise consumes two goods, Prozac and Ritalin. His weekly income is \$100 per week and the price of Prozac is \$4 per pill and the price of Ritalin is \$2 per pill. Tom starts out consuming 10 Prozac pills and 30 Ritalin pills per week.

- a. (10) Graph the situation as described assuming his consumption bundle is optimal. Please put Ritalin on the horizontal axis.

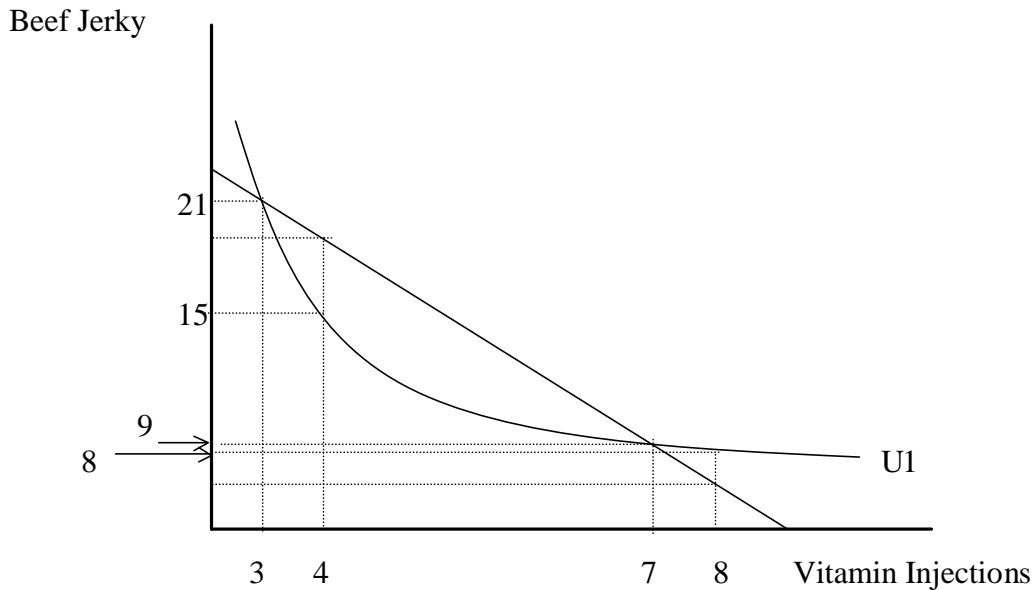


- b. (10) Due to changes in his insurance, the price of Prozac rises to \$6 per pill and the price of Ritalin rises to \$8 per pill. However, Steven Spielberg has just hired Tom to play an insane religious zealot obsessed with a young actress in a new movie, and his income increases to \$300/week. Will he be better off before the price and income change or after? Please demonstrate how you know on the graph from part a.



With the price change and income change, Tom can still afford the same bundle as before ($R=30$, $P = 10$). However, now that the relative price of Ritalin has risen – relative to the price of Prozac – Tom will be able to move to a higher indifference curve ($U2$) by consuming less Ritalin and more Prozac.

- 5.(16) While recuperating from knee surgery, Barry Bonds (baseball player) consumed two goods, Beef Jerky and Vitamin Injections. The price of Beef Jerky is \$2 per ounce and the price of vitamin injections is \$6 per shot. Barry's income is \$60 per month.



- a. (8) Explain what is represented by the slope of the budget line and the slope of the indifference curve.

The slope of the budget constraint tells us the price of Vitamin Injections in terms of how much Beef Jerky must be given up to consume one more Injection. In this way, the slope tells us the MC of consuming one more Injection.

The slope of the indifference curve tells us the MRS or Marginal value of consuming one more Vitamin Injection in terms of how much Beef Jerky he is willing to give up to consume one more Injection. In this way, the slope tells us the Marginal Benefit of one more Injection consumed.

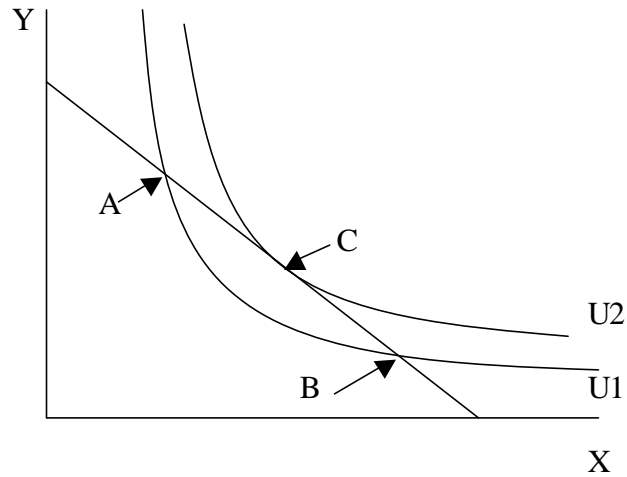
- b (8) Using this understanding of the slope of the budget line and indifference curve, explain whether Barry should increase his consumption of Vitamin Injections from 3 to 4.

The marginal cost of consuming a 4th Injection is 3 units of Beef Jerky. The marginal benefit of consuming a 4th Injection is 6 units of Beef Jerky (as measured by the slope of the indifference curve between 3 and 4 units of Beef Jerky). As the $MB > MC$, he should consume a 4th Injection.

Next, assuming Barry is considering consuming 7 Vitamin Injections, explain whether he should increase his consumption to 8 injections.

The marginal cost of consuming a 4th Injection is 3 units of Beef Jerky. The marginal benefit of consuming a 4th Injection is 1 units of Beef Jerky (as measured by the slope of the indifference curve between 7 and 8 units of Beef Jerky). As the $MB < MC$, he should not consume an 8th Injection.

6. (10) In the following figure, assume the price of X (P_x) is 1 and the price of Y (P_y) is 3.



It has been shown that along an indifference curve, the following is true:

$$\Delta X \cdot MU_x + \Delta Y \cdot MU_y = 0.$$

Assume we know that this consumer is at a point where $MU_x = 12$ and MU_y is 4, demonstrate/explain in as much detail as possible how you can tell whether the consumer is at point A, B, or C.

By rearranging, we find that $\Delta Y / \Delta X = MU_x / MU_y$.

By substitution, we find that $\Delta Y / \Delta X = 12 / 4 = 3$, so the MRS at the bundle being consumed is 3.

The slope of the budget constraint is $P_x / P_y = 1 / 3$. As $P_x / P_y < \Delta Y / \Delta X$, they must be at bundle A.

7. (10) “One of the positive benefits of hurricane Katrina is that money will flow into New Orleans to rebuild the city. Just think of all the jobs created in the city rebuilding houses and businesses... a city that had a pretty high unemployment rate. It just brings a tear to my eye to think of all those unskilled workers learning the skills they will need to be productive taxpayers.” - Senator Rita E. Vacuaté

Explain how Hazlitt would respond to the above quote.

He would hate this. His response would be that the same money could be spent to retrain workers without having them have to rebuild what existed before. The rebuilding will be expensive and it would be much better for the workers to have spent their energy building something something new rather than rebuilding what was lost. From another angle, the money flowing into New Orleans could have been used to pay for all sorts of stuff (MP3 players, road improvements, tacos, etc. instead of rebuilding what was lost).

Scratch paper page. Please turn in with exam.

Name _____

- 4.(6) Tom Cruise takes two types of medication, Prozac and Ritalin. For quantities of up to 7 Prozac pills per week and up to 14 Ritalin pills per week, they make him better off. However, past those numbers, increased consumption of either drug makes him worse off.

Putting Prozac Pills on the vertical axis and Ritalin Pills on the horizontal axis, draw one of Tom's indifference curves and describe why it looks the way it does.