ECON 360: Intermediate Microeconomics

Midterm Exam, Summer 2024

- Define any variables you need to answer the problems.
- All materials except for your cheat sheet should be put away before beginning the exam. Use of cell phones during the exam for any purpose is forbidden.
- Please write your answers in the space provided.
- Keep your answers short but clear. Your goal is to convince a skeptical grader that you understand the relevant concepts well enough to answer the question you are given.
- The questions on the exam sum to 60 points.
- Remember to turn in your cheat sheet with your exam.
- Good luck on your Econ test!

1. (4 points) What is your name?

1 True/False Questions

Indicate "T"rue or "F"alse for each of the following statements or claims. For each false statement, if you correctly and clearly explain why it is false, I will give you a bonus point. No explanations necessary for claims or statements. which you think are true.

2. (2 points) Bill's basket contains pens and pencils. Bill is always happier when he has more of both pens and pencils. When Bill's basket contains 90% pencils and 10% pens, he is just as happy as when his basket contains 10% pencils and 90% pens. However, Bill is willing to trade fewer pencils for 1 pen when his basket contains 10% pencils compared to when his basket contains 90% pencils. **Claim**: Bill's preferences are well-behaved.

3. (2 points) **Claim**: Corner solutions to the utility maximization problem only arise if a consumer has perfect substitutes or perfect complements preferences.

4. (2 points) Your favorite donut shop constantly sells out of donuts, and the line for this donut shop is always around the block when it is open. **Claim**: Based on what we have seen in class, the donut shop raising the price of its donuts would help prevent the donut shop from selling out.

5. (2 points) Debra and Edith meet to trade collectable baseball cards. They end up deciding to walk away without having traded at all. **Claim**: Based on the model we have seen in class, there were no Pareto improvements over the trading cards Debra and Edith already had.

6. (2 points) Suppose you can choose how many hours you work per week, and you earn $15 per hour. **Claim**: You would choose to work 40 hours each week, but you would be willing to pay your coworker $200 to cover your last 10 hours of work.

2 Multiple Choice Questions

Circle the best answer to each question. There is only one answer for each question. No explanation necessary.

7. (2 points) Consider 2 goods. Suppose good 1 is the grade you get on your econ test, and suppose it enters into your utility function non-linearly. Suppose good 2 is every other good, and the increase in your utility from a 1 unit increase in good 2 is always 1. Which best describes your preferences?

    A. Well-behaved

    B. Quasi-linear

    C. Cobb-Douglas

    D. Perfect substitites

8. (2 points) I eat Sam's Club hot dogs because I am a broke grad student. If I made a higher wage, I would eat fewer Sam's Club hot dogs and more hot dogs at 5 Guys. Every time Sam's Club raises the price of their hot dogs, I eat fewer Sam's club hot dogs. Which type of good is a Sam's Club hot dog based on these statements?

    A. Normal and ordinary

    B. Inferior and giffen

    C. Normal and giffen

    D. Inferior and ordinary

9. (2 points) In the market for chicken feed, farmers are not at all sensitive to changes in the price of chicken feed, since they need it to feed their chickens and sustain their business. The producers of chicken feed are more sensitive to the price of chicken feed, and adjust their quantity a lot based on how much the producers can sell their feed for. Now consider a tax on chicken feed placed on the farmers. In this market, because _____, most of the tax will wind up being paid by the _____.

    A. supply is more inelastic, chicken feed producers

    B. demand is more inelastic, chicken feed producers

    C. supply is more inelastic, farmers

    D. demand is more inelastic, farmers

10. (2 points) You work a job that pays you \$100 every 14 days. Suppose you just got paid, so your next pay check is 14 days from today. If the interest rate per day is r, how much money would I need to pay you today for you to be indifferent between that amount of money and your paycheck 14 days from today?

    A. $\frac{\$100}{(1+r)^{13}}$

    B. $\$100 * (1+r)^{13}$

    C. $\frac{\$100}{(1+r)^{14}}$

    D. $\$100 * (1+r)^{14}$

11. (2 points) Dave walks into the farmers market with 6 plums and 2 dragonfruits. If plums are worth \$1 and dragonfruits are worth \$4, which other bundle is just barely affordable for Dave?

    A. 0 plums, 14 dragonfruits

    B. 4 plums, 3 dragonfruits

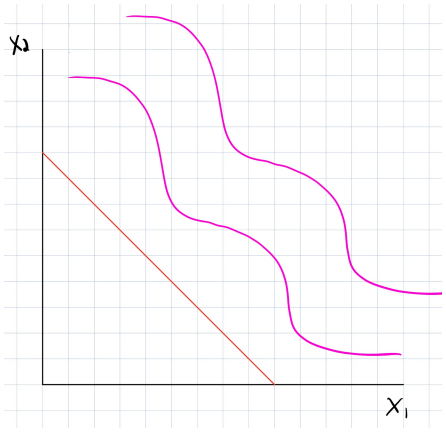
    C. 2 plums, 3 dragonfruits

    D. 2 plums, 2 dragonfruits

3 Short Answer Questions

These questions all require an explanation. Remember you are trying to convince me you understand the why and the how of what you are doing, not simply getting the answer correct. Cite specific concepts from class in your answers for full credit.

12. (4 points) Bill's budget constraint and two of his indifference curves are shown below. You can assume that Bill's other indifference curves look similar to the one depicted. Find Bill's optimal bundle(s) on the graph and explain why the number of optimal bundles makes sense given the indifference curves.



13. You are teaching an economics class, and you notice half of the students in your class never show up to class, while the other half do. Let's call the students who skip class skippers and the students who show up to class non-skippers.

    (a) (2 points) Using the concepts of benefits and costs, how would an economist explain why some students are skippers and some students are non-skippers?

    (b) (3 points) Suppose you want to reduce the number of skippers, so you introduce an attendance policy in which you reduce a student's final grade for each time they skip. Again using the concepts of costs and benefits, why might you expect to have fewer skippers as a result of this policy?

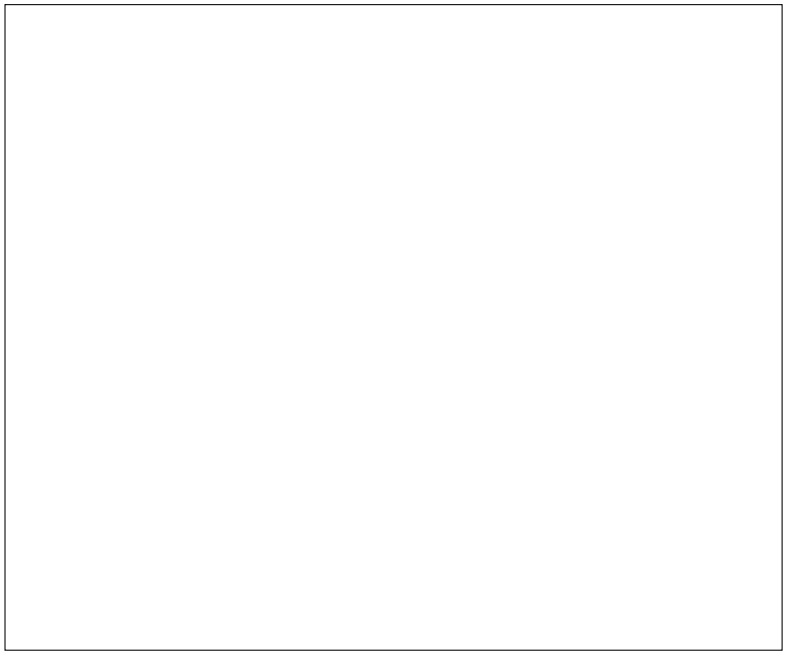
14. (6 points) The price of good 1 is \$2, the price of good 2 is \$2, I have \$20, and I buy the bundle (2,2). When I have \$25, and prices are unchanged, I buy the bundle (4,6). **Are my choices consistent with rationality as defined in class?** Why or why not?

15. (4 points) Cassandra's preferences for two goods x and y can be represented by the utility function $4 \cdot \sqrt{x} \cdot \sqrt{y}$. Find the marginal utility of X and the marginal utility of Y at the bundle (1,9). Show your work.

16. Bill and Erin are trading candy at the lunch table. Bill has 12 Skittles, and Erin has 6 M&Ms. You know Bill is willing to trade 1 Skittle for 2 M&Ms, and Erin is willing to trade 1 M&M for 3 Skittles.

    (a) (4 points) Write down 1 utility function for Bill's preferences, and 1 utility function for Erin's preferences. Explain why your utility function represents each of their preferences.

    (b) (5 points) On the graph below, draw the Edgeworth Box based on the information above. Clearly label the endowment point, as well as axes and which person is at each origin. Include Bill's and Erin's indifference curve through the endowment point. No explanation necessary.



(c) (4 points) Identify the Pareto optimal allocations on your Edgeworth Box, and explain why these allocations are Pareto optimal.

(d) (4 points) Identify the Pareto improvements for Bill and Erin compared to their endowment, and explain why they are Pareto improvements.