Discussion 5

1 Topics

- Budget Constraints
- Utility maximization
- Midterm 1 - Discussion of most missed questions

2 Exercises

2.1 Budget Constraint.

1. Suppose Michelle's income is \$100 per week and she only consumes oranges (good X) and apples (good Y). Each apple costs \$5 and each orange costs \$10.

1. Find the equation for Michelle's budget constraint and graph it.
2. Is the bundle $(7, 6)$ affordable for Michelle? What about the bundle $(7, 7)$?
3. Now suppose that price of an apple increases from \$5 to \$10. Graph Michelle's new budget constraint and find the equation.
4. Michelle got a raise and her income is now \$200. Find the equation for Michelle's new budget constraint and graph it.

2.2 Utility maximization.

2. Mark spent \$80 to buy 10 cans of beer (good X) and 5 bottles of wine (good Y) last week. Each can of beer cost P_x and each bottle of wine cost P_y. Suppose he is a utility maximizing agent.

1. Now, the price of one bottle of beer has increased by \$1 and he has spent the same amount of money to buy 8 cans of beer and 5 bottles of wine. Find the price of beer before the change and the price of wine.

2. What is the MRS before the price change and after the price change?

3. Charles derives utility from pairs of black shoes (good X) and pairs of blue jeans (good Y). The marginal utility of a pair of black shoes is $MU_X = \frac{1}{X}$. The marginal utility of a pair of blue jeans is 1. He has an income of \$120. Suppose a pair of black shoes costs \$20, and a pair of blue jeans costs \$40. Which bundle should he consume if he wants to maximize his utility?

2.3 Multiple choice questions.

4. Danny is known to spend his entire income on cocktails (good X) and vinyl records (good Y). He has constant marginal utility for both. Which of the following statements must be true about Danny's consumption of cocktails and records? Assume that the marginal rate of substitution of X for Y is not equal to the price ratio.

(a) Danny will consume equal numbers of cocktails and records

(b) Danny will consume only cocktails

(c) Danny will consume only records

(d) Either (b) or (c)

Difficult Midterm 1 Questions

6. Suppose the nation of Wakanda produces only goods X and Y. Which of the following is **NOT** true about a Wakanda's production possibility frontier (PPF) for goods X and Y?
    a. An increase in demand for X would shift the PPF out along the X axis.
    b. All points below the frontier are feasible.
    c. If Wakanda's current production point lies on the PPF, then Wakanda can only increase production of X by decreasing production of Y.
    d. An increase in the efficiency of producing Y will increase the opportunity cost of producing X.
9. An increase in the price of steel will lead to a decrease in

    a) the demand for steel

    b) the supply of steel

    c) the demand for cars

    d) the supply of cars

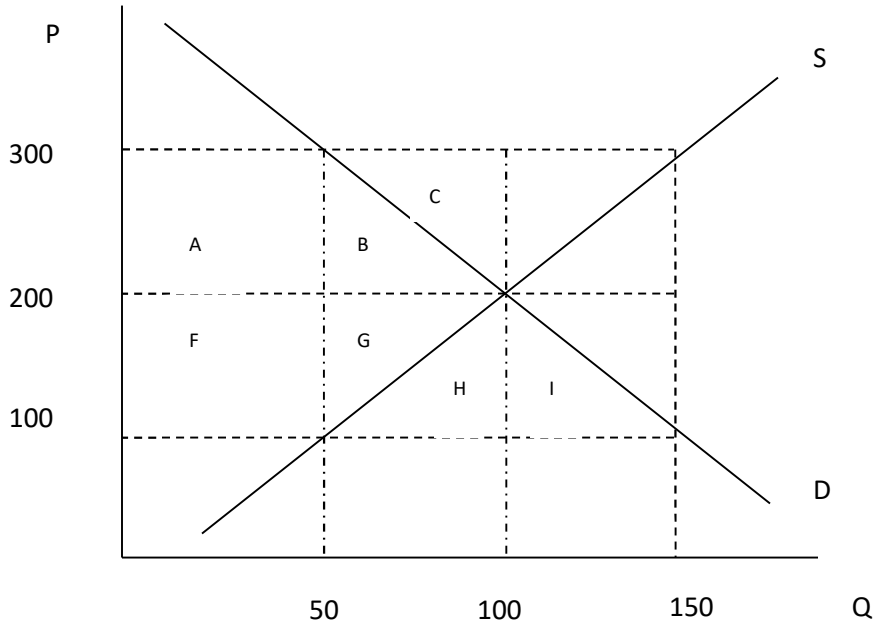
15. Consider the market for coffee with two suppliers, Alice and Bob. These are the only two suppliers. Alice's supply is given by P = 10+Q. Bob's supply is given by P = 6+Q. What is aggregate supply equation for coffee when the price is greater than 12?
    a. P = 8 + 0.5Q
    b. P = 16 + 2Q
    c. P = 8 + Q
    d. P = 16 + 0.5Q

Use the following information to answer the next <u>Two</u> questions:

In the market for Economics Textbooks the demand is given by: P = 120 – 2Q, and the supply by: P = 30 + Q

17. Now suppose that the government institutes a price ceiling of $70 per textbook. What would the deadweight loss of this policy be?
    a. $0
    b. $100
    c. $37.5
    d. $75

Use the following graph for answering the next question:



20. Consider the initial equilibrium given supply and demand for widgets. Now suppose that the government will impose a maximum price of $100. The change in consumer surplus induced by this policy can be measured as
    a. area F – area B
    b. area F + area G
    c. area F + area G – area B
    d. area F + area G + area H

26. For which points is the price elasticity of demand smaller than -1?
    a. A and B only
    b. A, B, and C only
    c. D and E only
    d. C, D, and E only

32. The table below shows the relationship between the price of bicycles and its total revenue.

Price ($)	500	600	700
Total revenue ($)	10 000	12 000	14 000

Within the above price range, the price elasticity of demand for bicycles is

a) equal to zero

b) unit elastic

c) elastic

d) unable to tell

33. The table below shows the relationship between the price of books and its total revenue.

Price ($)	10	20	30
Total revenue ($)	800	800	800

Within the above price range, the price elasticity of demand for books is

a) equal to negative one

b) equal to zero

c) smaller than zero but greater than negative one

d) smaller than negative one