

Practice Questions:

1. **SE/IE/TE for two goods:** $U(x,y)=\max\{4x,y\}$, price of good x is \$12, price of good y is \$2, income is \$12. Price of good x decreases to \$6.

- i. Find the numerical values of SE, IE, TE
- ii. Find the compensated income at point B

2. **SE/IE/TE for two goods** (Summer 17 Midterm 2 multiple choice) If a good is inferior, which of the following must be true in regards to the consumption of the good when the price of this good increases? (Assume well-behaved indifference curves, positive quantities consumed for all commodities, other prices and income are held constant, and the Law of Demand applies to this good).

- a. The change due to the substitution effect and income effect are both negative
- b. The change due to the substitution effect and income effect are both positive
- c. The change due to the substitution effect is smaller in magnitude than due to the income effect
- d. The change due to the substitution effect is larger in magnitude than due to the income effect
- e. None of the above

3. **Linear Supply/Demand:** Drawing parts i. and ii. separately, find the following for each:

Before the Tax: competitive equilibrium, consumer surplus, producer surplus

After the Tax: producer price, consumer price, quantity demanded, consumer surplus, producer surplus, tax revenue, deadweight loss

- i. Demand is given by $P=16-4Q$. Supply is perfectly elastic at \$8. A \$4 tax is levied on buyers.
- ii. Demand is given by $P=16-4Q$. Supply is given by $P=4Q$. An \$8 tax is levied on sellers.

4. **Expected Utility** (Fall 17 Midterm 2 free response) Eric's utility is the square root of weekly consumption. He is given the following two risky options:

- i. \$64 with 50% probability, \$16 with 50% probability
- ii. \$X with 50% probability, \$4 with 50% probability

If Eric is indifferent between the two options, what is X?

5. **Investing and Present Value** (Summer 17 Midterm 2 multiple choice) Cali currently has \$8,000 that she wants to buy a new car with. The car currently has a cost of \$10,000. If the inflation rate over the next year will be 60%, what must the nominal interest rate be over the next year if she can exactly afford the car in one year?

- a. 100%
- b. 95%
- c. 90%
- d. 85%
- e. None of the above

6. **Buying and Selling:** $U(x,y) = \sqrt{x} + \frac{1}{2}y$, price of good x is \$1, price of good y is \$1 and initial endowment is (2,4). They can buy and sell goods x and y. Find SE/IE/TE if the price of good y changes to \$2. Graph.

7. **Labor Supply:** Linda really likes documentaries, they are her only consumption. Each documentary is an hour long, and for every hour of her time she spends in leisure, she always watches 1 new documentary. There are hundreds of documentaries that she can watch, each costing \$10, and she would be equally happy watching any of them. Linda has 10 hours a week to devote to labor or leisure.

i. If the market wage is \$10, and she does not have any non-wage income, what is Linda's reservation wage? How many documentaries will she watch? How many hours will she work?

ii. If Linda now receives \$100 in non-wage income, interpret her new reservation wage? What are the substitution, income and total effects of her labor supply with this change in non-wage income?

8. **Reservation Price:** Ed likes baseball caps. Let B be the number of baseball caps he consumes, and Y be the money spent on all other goods he consumes. A baseball cap costs \$4. If he can only consume baseball caps in discrete units and his preferences are given by $U(B, Y) = 10\sqrt{B} + Y$, what is Ed's reservation price for the first baseball cap he buys? Is his reservation price for a second baseball cap the same, higher, or lower than this?

- a. \$4 ; higher
- b. \$10 ; lower
- c. \$2 ; the same
- d. \$40 ; the same
- e. Not enough information