

Midterm (answers)
ECNS 204, Fall 2020
Exam is due by 10am on Friday, October 9th
Submit to TA at alectruax@gmail.com

Name _____

1.) (10 points) BJ and Sean have the following marginal value schedules for apples. BJ has an initial endowment of 3 apples and Sean has an initial endowment of 8 apples. How many apples will be exchanged and what are the gains from trade?

<u>Q</u>	<u>MV(BJ)</u>	<u>MV(Sean)</u>
1	3	6
2	2	5.50
3	1.50	5.25
4	1	4.50
5	.5	4
6	.25	3.75
7	0	3
8	0	2.5
9	0	2.25
10	0	2

Q = 2 apples are traded.
Gains = \$0.75

2.) (10 points) When the economics department recruits new professors, the department wants the current faculty to go to dinner with the visitors. It subsidizes this activity by reimbursing current faculty up to \$20 per dinner with visitors. What effect does this have on the quantity of dinners current faculty will have with visitors, and on the quality of those dinners?

Shipping the Good Apples Out problem

-Quantity of dinners goes up. But, average quality of meals decreases because the relative cost of a high quality meal goes up.

3.) Penny is from the Pacific Northwest and has the following marginal value schedule for King salmon and Atlantic salmon (assume Penny only purchases one type of salmon, not a combination of the two)

<u>Q</u>	<u>MVking</u>	<u>MVatlantic</u>
1	50	25
2	44	22
3	38	19
4	32	16
5	26	13
6	20	10
7	14	7
8	8	4
9	2	1
10	0	0

a.) (5 points) At a price of \$38, what is the quantity of King salmon that Penny demands? What is Penny's gain from being able to purchase King salmon at this price?

$Q_{\text{King}} = 3$
 $CS = \$18$

b.) (10 points) What would the price of Atlantic salmon have to be for Penny to be indifferent between purchasing King or Atlantic salmon?

$P_{\text{Atlantic}} = \$16$

4.) A typical estimate for the elasticity of demand for chocolate chip cookies is -2.

a.) (5 points) What does this say about peoples' willingness to substitute to other baked goods and sweets?

Substitute goods are readily available...willingness to substitute is high.

b.) (5 points) Due to an adverse shock to the world's dough supply, the price of a box of a dozen chocolate chip cookies has gone up from \$5 to \$6. What is the percent change in the quantity demanded?

$$\varepsilon = \% \Delta Q / \% \Delta P$$

$$\Rightarrow -2 = \% \Delta Q / (1/5)$$

$$\Rightarrow \% \Delta Q = -0.4$$

c.) (10 points) What happens to the total amount people spend on chocolate chip cookies? Show with a diagram (no diagram, no points...and don't forget to label!!!)

This graph should show a shift inward in the supply curve. Because demand is elastic, the graph should show TE decrease after the supply shift.

5.) (10 points) Clay has accumulated enough frequent flier miles to take 4 trips to any South American country of his choosing. One caveat is that Clay needs to take these trips within the next 2 years or his frequent flier miles will expire. Give an economic explanation (**with a graph!**) as to why Clay might choose to take 2 trips this year and 2 trips next year as opposed to some other trip taking pattern.

Clay is smoothing his consumption. Your graph and explanation should follow that from Fig. 2-8 in your textbook.

6.) Andy consumes only two goods, X and Y. His indifference curves have the usual shape. He prefers basket $(X=3, Y=1)$ to basket $(2,2)$.

a.) (5 points) Is it possible to tell whether Andy prefers basket $(1,3)$ to $(3,1)$?

b.) (5 points) Is it possible to tell whether Andy prefers basket $(1,3)$ to $(2,2)$?

You must support your answers to a.) and b.) with a **graph**.

a.) Andy prefers basket $(3,1)$ to $(1,3)$

b.) Andy prefers basket $(2,2)$ to $(1,3)$

This can easily be shown in a graph with three indifference curves. The most leftward IC will have one point on it reflecting the bundle $(X=1, Y=3)$. The middle IC will have a point on it reflecting the bundle $(X=2, Y=2)$. The most rightward IC will have one point on it reflecting the bundle $(X=3, Y=1)$.

7.) The demand curve for heroin for some unit does is:

MV	\$100	90	80	70	60	50	40	30	20	10
Q	11	12	13	14	15	16	17	18	19	20

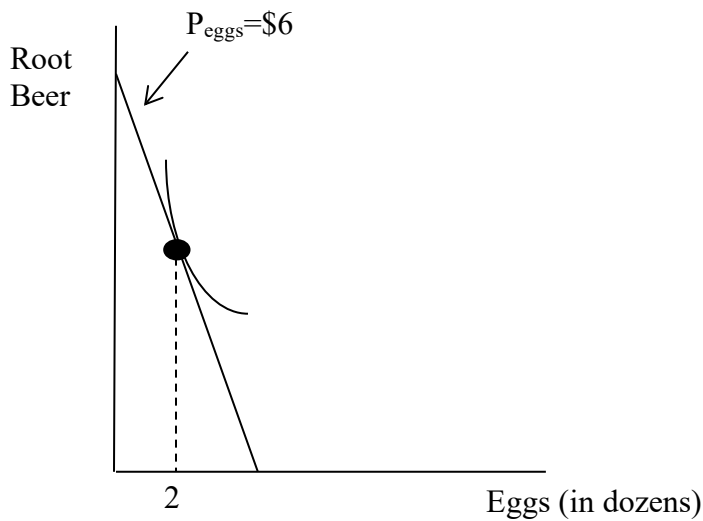
a.) (5 points) The current price of heroin is \$30. Calculate the demand elasticity at this price. Is the demand elastic or inelastic at this price?

$$\epsilon = \{(19-18)/18\} / \{(20-30)/30\} = -1/6 \text{ (inelastic)}$$

b.) (10 points) Suppose you are a consultant to the Drug Enforcement Agency. They are planning on increasing efforts at drug interdiction at our borders, in order to decrease the available supply of heroin. What consequences of this policy might you point out to them, in particular, its effect on drug-related crime? (Hint: Saying that because the supply of heroin is decreased and, as a result, the price of heroin rises is not a sufficient enough answer)

Drug-related crime may actually rise because TE will increase (due to inelastic demand) after the supply shift.

8.) Suppose Beth's optimal bundle of root beer and eggs is depicted by the following indifference curve/budget constraint diagram when the price of a dozen of eggs = \$6:



a.) (5 points) Suppose that if the price of eggs were to fall to \$3 she would consume 3 dozen eggs and that if the price of eggs were to fall to \$2 she would consume 5 dozen eggs. On the graph above, depict these alternative scenarios.

Just draw two new budget constraints where you rotate the original budget constraint at its current point of intersection with y-axis. The new tangencies between the ICs and budget constraints should be at the points $Q_{\text{eggs}} = 3$ and $Q_{\text{eggs}} = 5$.

b.) (5 points) Given the information above, derive Beth's demand curve for eggs (i.e. **show graphically**) in the space to the right of the indifference curve/budget constraint diagram. Make sure to label your new graph.

This is just a demand curve for eggs where you are connecting the following points ($Q_{\text{eggs}}=2, P_{\text{eggs}}=\6), ($Q_{\text{eggs}}=3, P_{\text{eggs}}=\3), and ($Q_{\text{eggs}}=5, P_{\text{eggs}}=\2).

9.) (10 points) Suppose Alfred earns \$10/hr. and at this wage he chooses to work 10 hrs./day. Now, suppose that Alfred has received a raise to \$15/hr. Will Alfred choose to work more or fewer hours per day under this higher wage rate? Or, given this information, is it not possible to tell whether he will work more or less? What does your answer depend on?

Support your answer with an indifference curve and budget constraint analysis.

Your graph should show the standard income and substitution effects.

We do not know whether Alfred will work more or fewer hours under the higher wage rate. The answer depends on the relative magnitudes of the income and substitution effects.

Extra Credit (worth up to 5 points). Evaluate the following statement (remember, answer like an economist!). Your answer should be no longer than one sentence.

“If a job is worth doing, it is worth doing well.”

It is worth doing up to the point where the $MB = MC$.