COMMERCE MENTORSHIP PROGRAM

MIDTERM REVIEW SESSION

ECON 101

PREPARED BY

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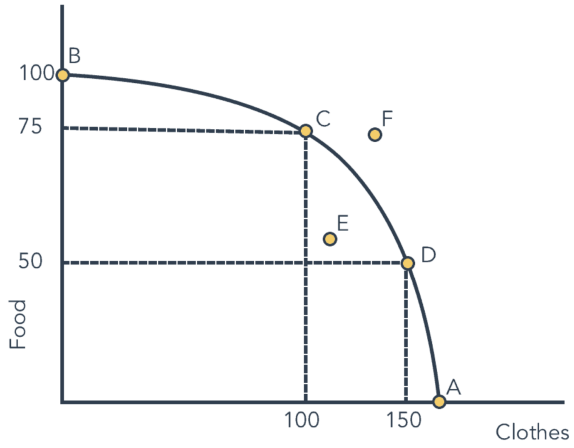
Q1

Jack Olantern wants to go to a UBC costume themed party tonight, which cost him $30. He is debating whether he should give his part-time restaurant shift to his best friend and go to the party. He knows that he would be earning $15 per hour for 4 hours, and $40 of tips if he takes the shift. In addition, his mom had already bought him dinner for $10. What is Jack Olantern's opportunity cost of going to the costume party?

Cost of party - $30
Money earned at part time job: 15x4 = $60 + $40 = $100
Mom's dinner - $10 SUNK COST (not included)
Opportunity cost of attending the party is the money he would earn at his job, which is $100. The cost of dinner that his mom bought has already occurred and is irreversible, so it is a sunk cost.

Q2 Production possibility

What is the opportunity cost of moving from point C to point D on the production possibility curve?



At point C on the graph, the economy is able to produce 75 units of food and 100 units of clothing. If we move down the graph to point D, the economy decreases its production of food to 50 and increases its production of clothing to 150.
75 - 50 = 25 units of food lost
150 - 100 = 50 units of clothing gained
The opportunity cost is 25 units of food lost.

Q3

What are the price indexes when the base year is set to 2017? What is the percentage increase in the price from 2017 to current day?

Year	Price	Price Index
2017	49	(49/49)*100 = 100
2018	52	(52/49)*100 = 106.12
2019	57	(57/49)*100 = 116.33
2020	60	(60/49)*100 = 122.45
2021	68	(68/49)*100 = 138.78

Percentage increase:
(Current year - base year) / base year
138.78 - 100 / 100 = 38.78%

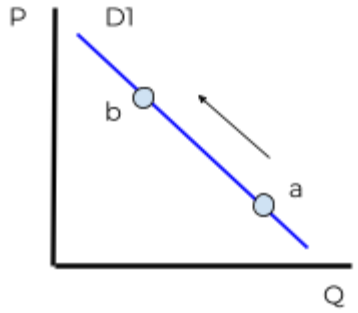
Q4

What is the equilibrium price and quantity for the below demand and supply function?

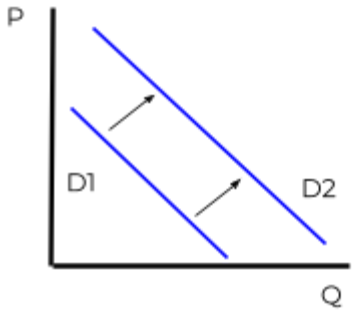
Equilibrium price and quantity occurs when the demand and supply curves intersect. In this example, the equilibrium point occurs when price = $5 and quantity = 40.

Q5

The prices of chocolate cake in the market suddenly went up due to a lack of cocoa. The price for ice cream cake, a direct substitute for chocolate cake, stayed the same. Draw each demand curve of each good, illustrating how the curves would change in this situation.



Chocolate cake demand curve. As the price of chocolate cake increases, consumers rather substitute into other goods. The demand for chocolate cake decreases because of the price increase and results in a movement along the curve from point a to b.



Ice cream cake demand curve. As the price of chocolate cake increases, consumers rather substitute into ice cream cake. The demand for ice cream cake increases and results in a rightward shift of the curve from D1 to D2.

Q6

As Maria's income increased after getting a job, her demand for Campbell's soup decreased. What type of good is Campbell soup and what type of elasticity is it?

Campbell soup is an inferior good. Her demand for the good decreased after her income/purchasing power increased. Inferior goods have a negative income elasticity so the income elasticity < 0.

Q7

If the quantity demanded of hydroflasks drop after a price increase of Brita water filters, what is the relationship between hydroflasks and Brita filters?

Hydroflasks and brita filters are complementary goods. This means that their relationship moves in opposite directions. The demand for hydroflasks would drop after a price increase of brita filters because they are complementary goods that can be used together.

Q8

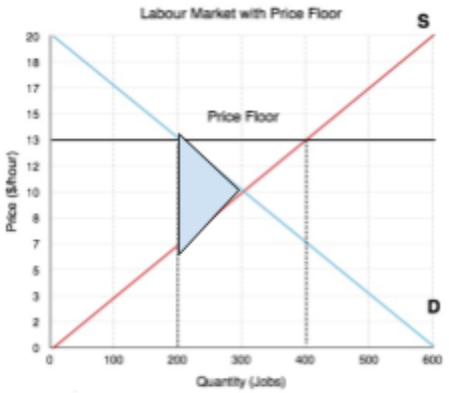
Suppose the equilibrium price for banana bread ingredients is $5 for a quantity of 100 banana bread loaves per month. The price of bananas went up, and as a result it now costs $8 to bake banana bread. Quantity demanded falls to 70 per month. What is the price elasticity of demand? Is it elastic or inelastic? What does this mean for people's preference for baking banana bread?

$$E_S = \frac{\%\Delta Q}{\%\Delta P} = \frac{\frac{Q_2 - Q_1}{(Q_2 + Q_1)/2}}{\frac{P_2 - P_1}{(P_2 + P_1)/2}}$$

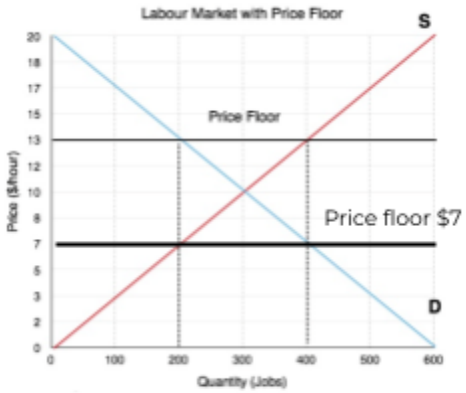
(70 - 100) / (170/2) = -0.3529
(8 - 5) / (13/2) = 0.4615
-0.3529 / 0.4615 = -0.7647
Inelastic because e < 1
Most people still prefer baking banana bread even if the price for ingredients rises. The price for ingredients rose more than the change in people who still bought the ingredients.

Q9

Consider the diagram below. The minimum wage equilibrium price and quantity is 300 jobs at $10/hour. What would happen if a price floor of $13/hour was implemented? What if a price floor of $7 was implemented? What is the economic loss?



The price floor of $13 will be an effective price floor because it is above the equilibrium price of $10. It will force prices to be above the equilibrium price, but it will also cause economic loss of the shaded area when there is less demand than supply.



The price floor of $7 will be an ineffective price floor because it is below the equilibrium price of $10. It is not binding and will not force prices to be above the equilibrium price because the floor sets the minimum wage for anything above $7. There is no economic loss.

Q10

Label the consumer surplus, producer surplus, and dead-weight loss in this diagram.

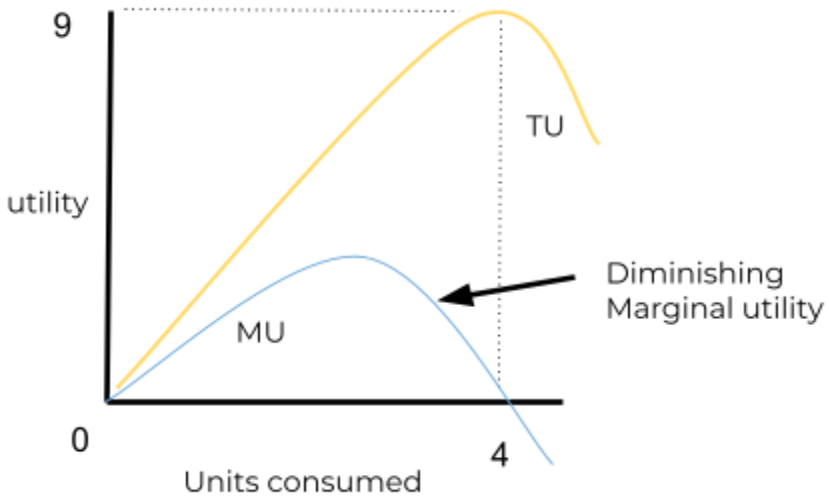
Economic loss: blue triangle
Consumer surplus: yellow
Producer surplus: purple
The effective price ceiling creates a barrier for prices forcing it to be below equilibrium. Therefore there is an economic loss where demand is greater than supply. Consumers benefit because prices are lower and producers lose surplus.

Q11

Fill in the Marginal utility column. Show the point of highest marginal utility and highest total utility. Plot a rough marginal and total utility curve. Locate the point of diminishing marginal utility.

Number of times you hear a song	Total Utility	Marginal Utility
0	0	-
1	2	2
2	**6**	**4**
3	**9**	**3**
4	9	0
5	8	-1

The point of highest marginal utility is when you hear the song 2 times, where the marginal utility you gain is +4.
The point of highest total utility is when you hear the song 3-4 times, where the overall total utility you gained is 9.



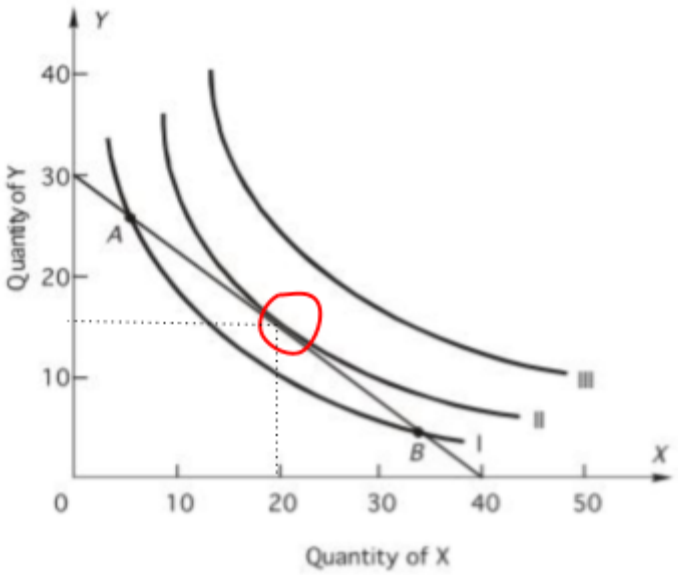
Q12

Classify each scenario as a substitution effect or income effect.

Chicken prices rise so Sally purchases more turkey and beef	substitution
There is excess supply of Lays Chips, driving down the price, and Sally switches to Lays from Doritos.	substitution
Sally has additional allowance left over from chores, and buys extra candy.	income

Q13

Identify the point at which the marginal rate of transformation = marginal rate of substitution. At which quantity of good X and Y is the utility maximizing choice?

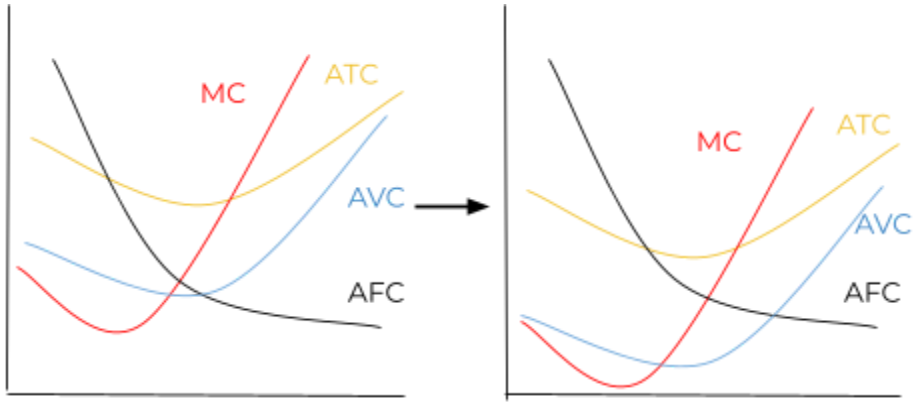


The marginal rate of transformation is equal to the marginal rate of substitution when the indifference curve is tangent to the budget line. This is where the rate at which the consumer is willing to trade one good for the other is equal to the rate that they can trade. The utility maximizing choice will be 15 units of Y and 20 units of X.

Q14

Izzy's Icecream recently expanded in operations, and as a result she has been able to buy ingredients in bulk from her suppliers. These bulk discounts have given her an overall cost savings of $2 per item.

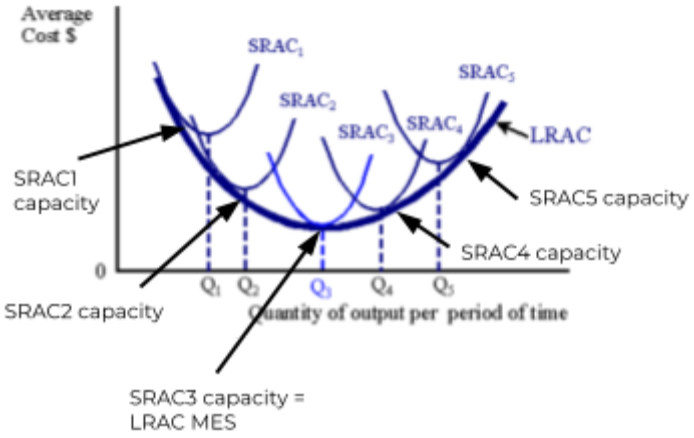
If other things remain constant, what happens to the average total cost curve, average fixed cost curve, average variable cost curve and marginal cost curve? Demonstrate in a cost curve diagram.



Marginal cost curve, average total cost curve, and average variable cost curve all shifts down as a result of a decrease in variable input prices. The bulk discount of $2 per item is a variable cost and thus will not affect the average fixed cost curve.

Q15

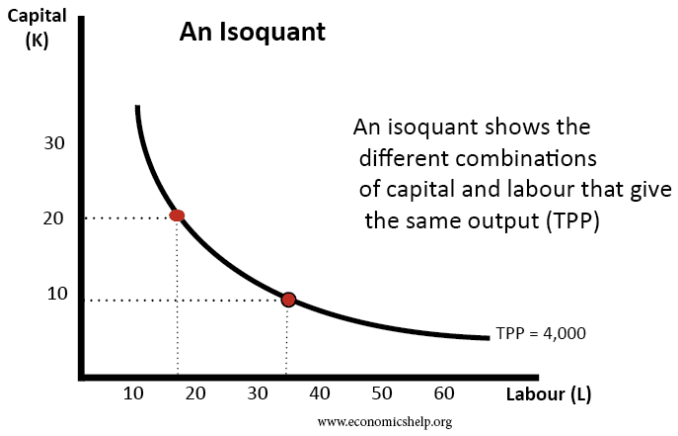
In the graph below, label the SRAC capacities and LRAC MES point. If the firm wanted to increase output in the long run, how would they do this?



In the long run, firms will be able to adjust the input of all factors of production. There are no longer any fixed inputs except for technology. Firms have the option to substitute into cheaper goods to decrease costs by switching methods of production when factor prices change. They can also utilize economies of scale to decrease costs with increasing their long run production.

Q16

What is the marginal rate of technical substitution for the indicated points on the graph? (-MPk / MPn)



Change in capital (k) = 10 - 20 = -10
Change in labour (L) = 35 - 17 = 18

Change in k / change in L = -10 / 18 = -0.55