ECONOMICS REVIEW QUESTIONS

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Unit one review questions

1. Define economics from perspective of wealth, welfare, scarcity and growth. Which definition more suits for economics? Why?

   Wealth perspective

   - Economics is accumulation of valuable economic resource by producing goods and services to generate income.

   Welfare Perspective

   - Economics studies about efficient allocation of scarce resources to satisfy unlimited human want and studies about income distribution and how this affects social welfare.

   Scarcity Perspective

   - Economics studies about how people ese limited resources efficiently to satisfy unlimited human want.

   Growth perspective

   - Economics studies about how people use scarce resources efficiently and increase the production of goods and services of the economy.

   ✓ More suit for Economics is **scarcity,** because Economics study, about efficient allocation of scarce resource to attain maximum unlimited human wants.

2. Why we study economics? Have you gained anything from this chapter? Would you discuss them please?
   - We study economics to know how to manage and efficiently allocate our scarce resources to get the maximum satisfaction of our unlimited want.
3. Define scarcity, choice and opportunity cost. Can you link them in your day to day lives?
   - **Scarcity:** is the limitation of resources to satisfy unlimited human want.
   - **Choice:** is an alternative (option) we choose because of scarcity or limitation of resource.
   - **Opportunity cost:** is the next best alternative that is scarified or forgone to obtain one more unit of a product.
4. What do you understand by positive economics and normative economics?
   - **Positive Economics:** is concerned is analysis of facts and attempts to describe the world as it is out any value judgement or it gives scientific explanation is out any value judgment.

- **Normative Economics:** is a matter of opinion or it is subjective in nature which cannot be proved or rejected with reference to facts. It is leaded with judgments about what is good or what is bad.

5. Explain why economics deals with allocation and efficient utilization of scarce resources only?
    - Economics deals is allocation and efficient utilization of scarce resources because it tries to satisfy the unlimited human want is limited resource.
6. In recent years, especially around big cities, there is the problem of air pollution and the likelihood of poisoning is high. Given this scenario, do you think that air is free recourse? Justify your answer.
    - Air is a free resource because we are not paying any price to breath it. According to the given scenario there is air population which is the negative externality of a business organization so there may be a health problem therefore we are not paying for the air but we may pay for the treatment.
7. Describe the four categories of economic resources. Which category of resources you and your family owned?
    - There are four categories of economic resources: -
        A. Land: - a free gift of nature.
        B. Labour: - physical and mental effort of human beings.
        C. Capital: - all manufactured inputs that can be used to produce another goods and services.
        D. Entrepreneurship: - special type of human talent that helps to organize and manage other factor of production.
    - From the above categories of economic resources, me and my family own land, labour, and capital.
8. What is a production possibility curve?
    - Production possibility curve (PPC) shows the various possible combinations of goods and services that can be produced in given resource and technology.
9. Discuss the economic system in Ethiopia over the recent three regimes (EPRDF, Derg and imperial regime)
    - **Economic system of Ethiopia in EPRDF regime**
        - ✓ Ethiopia recently follows mixed economy which means businesses are owed by both the public and the private sector.
    - **Economic system of Ethiopia in Derg regime**
        - ✓ Ethiopia during the Derg regime followed command economic system which means the means of production was largely state owned or the private sector was not allowed.
    - **Economic system of Ethiopia in Imperial regime**
        - ✓ Ethiopia during the imperial regime followed feudal economic system which means the resources were largely owned by aristocrats and the church.

10. What are the central problems of an economy? Discuss them in detail.
    - The enteral problems of economy are: -
        - ✓ **What to produce: -** problem of allocation of resource.
        - ✓ **How to produce: -** problem of choice of technique.
        - ✓ **For whom to produce: -** problem of distribution of national product.

Work out

1. A. Calculate the opportunity cost of the production of good X at each point. What law does the trend in those values exhibit?

Oc at point A = 0

Oc at point B = $\frac{90-100}{2-0}$

= $|\frac{-10}{2}|$ Gives up 5 Good Y to produce 1 Good X

= |-5|

= 5

Oc at point C = $\frac{60-90}{4-2}$

= $|\frac{-30}{2}|$ Gives up 15 Good Y to produce 1 Good X

= |-15|

= 15

Oc at point D = $\frac{20-60}{6-4}$

= $|\frac{-40}{2}|$ Gives up 20 Good Y to produce 1 Good X

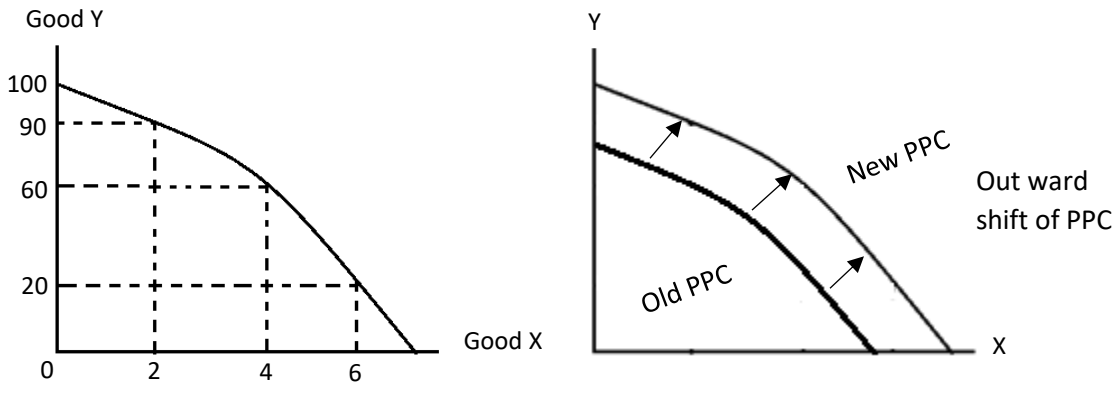
= |-20|

= 20

B. What changes are required for their economy to shift the PPF outward?

- Changes required to shift the PPF outward are: -
    1. Increase in the quantity or / and quality of economic resources.
    2. Advancement in technology.

Graphically



Unit two review questions

Part One: Distinguish between the following

1. Normal goods and inferior goods

Normal goods

- A normal good is a good that experiences an increase in its demand due to a rise in consumers' income. In other words, if there's an increase in wages, demand for normal goods increases while conversely, wage declines or layoffs lead to a reduction in demand.
- A normal good has an elastic relationship between income and demand for the good. In other words, changes in demand and income are positively decorrelated or move in the same direction.

- A normal good is a good that experiences an increase in its demand due to a rise in consumers' income.
- Normal goods have a positive correlation between income and demand.
- Examples of normal goods include food staples, clothing, and household appliances.

Inferior goods

- Inferior goods are the opposite of normal goods. Inferior goods are goods that see their demand drop as consumers' incomes rise. In other words, as an economy improves and wages rise, consumers would rather have a more costly alternative than inferior goods. However, the term "inferior" doesn't refer to quality, but rather, affordability.
- In economics, the demand for inferior goods decreases as income increases or the economy improves. When this happens, consumers will be more willing to spend on more costly substitutes. Some of the reasons behind this shift may include quality or a change to a consumer's socio-economic status.
- Conversely, demand for inferior goods increases when incomes fall or the **economy contracts.** When this happens, inferior goods become a more affordable substitute for a more expensive good. Most often than not, there is not a quality difference.

2. Complementary goods and Substitute goods

Complementary goods

- Complementary good a product that is used or consumed jointly with another product. Such a good usually has more value when paired with its complement than when used separately.
- In other words, an object that is paired with another item; they are usually purchased together rather than separately.

- A **complementary good** is a good whose use is related to the use of an associated or paired good. Two goods (*A* and *B*) are complementary if using more of good *A* requires the use of more of good *B*.

Substitute goods

- Substitute good: product that satisfies the same basic want as another product. Substitute goods may be used in place of one another.
- In other words, an object that can take the place of another item, which are essentially similar in use.

- **Substitute goods** or **substitutes** are at least two products that could be used for the same purpose by the same consumers.
- Substitute goods are identical, similar, or comparable to another product, in the eyes of the consumer.
- Substitute goods can either fully or partly satisfy the same needs of the customers. Therefore, they can replace one another, so the consumer believes.
- Pepsi-Cola is a substitute good for Coca-Cola, and vice-versa. When the price of Coca-Cola goes up, demand for Pepsi-Cola will subsequently rise (if Pepsi does not raise its price).

3. Market demand and Individual demand

Market demand

- Market demand provides the total quantity demanded by all consumers. In other words, it represents the aggregate of all individual demands. There are two basic types of market demand: **primary and selective**.
- **Primary demand** is the total demand for all of the brands that represent a given product or service, such as all phones or all high-end watches.
- **Selective demand** is the demand for one particular brand of product or service, such as the iPhone or a Michele watch.
- Market demand is an important economic marker because it reflects the competitiveness of a marketplace, a consumer's willingness to buy certain products and the ability of a company to leverage itself in a competitive landscape.
- If market demand is low, it signals to a company that they should terminate a product or service, or restructure it so that it is more appealing to consumers.

Individual demand

- The individual demand is the demand of one individual or firm. It represents the quantity of a good that a single consumer would buy at a specific price point at a specific point in time.

- While the term is somewhat vague, individual demand can be represented by the point of view of one person, a single family, or a single household.

4. Individual supply and Market supply

Individual supply

- Individual supply describes the willingness of an individual firm to provide a specific quantity of a good or service to the market over a given period of time.
- It depends on a number of different factors, such as the price of the product, cost of production, government policies and regulation, etc.
- In most cases (i.e. for normal goods) supply increases as the price of a good or service rises.
- This relationship between price and quantity can be illustrated with a supply curve.

Market Supply

- Supply is the quantity of a good or service that a producer is willing and able to supply onto the market at a given price in a given time period.
- The basic law of supply is that as the price of a product rises, so businesses expand supply to the market.
- A supply curve shows a relationship between market price and how much a firm is willing and able to sell.

5. Excess demand and Excess supply

Excess demand

- Excess demand is the situation where the price is below its equilibrium price.
- The quantity supplied is lower than the quantity demanded by the consumers.
- When we have lower prices and excess demand, there will shortage of goods, putting an upward pressure on the price as there will be more buyers chasing the available goods.
- As price increases the suppliers will start producing more but the demand from buyers will decrease. This will drive the price and quantity to its equilibrium level.

Excess Supply

- Excess supply is the situation where the price is above its equilibrium price.
- The quantity willing supplied by the producers is higher than the quantity demanded by the consumers.
- When we have higher prices and excess supply, manufacturers will have excess inventories and the competition among manufacturers will put the

downward pressure on price as there will be some suppliers who will be willing to supply at lower prices.

- As prices fall, the consumer demand will increase until it finally settles at the equilibrium price.

Part Two: Short answer and workout

1. Why does the quantity of salt demanded tend to be unresponsive to changes in its price?

- Because necessary or a luxury or a commodity of comfort demand for essential for existence such as food items.
- It is the generally inelastic.
- There goods are essential of existence on the other hand.
- Luxury and comforts are not essential for existence and their consumption can be dispensed with or postponed.

2. Why is the quantity of education demanded in private universities much more responsive than salt is to changes in price?

- Because elasticity of demand for a commodity depends upon the proportion of his or her income with the consumer spends on it.
- The smaller the proportion of income spent on a commodity the smaller will be the elasticity of demand and vice versa.

3. To get the market demand curve for a product, why do we add individual demand curves horizontally rather than vertically?

- Because individual quantities are obtained on the horizontal axis of demand curve.

4. The market for lemon has 10 potential consumers, each having an individual demand curve $P = 101 - 10Q_i$, where P is price in dollars per cup and Q_i is the number of cups demanded per week by the i^{th} consumer. Find the market demand curve using algebra. Draw an individual demand curve and the market demand curve. What is the quantity demanded by each consumer and in the market as a whole when lemon is priced at P = \$1/cup?

Solution

Q = 10.1 - 0.1P

MD

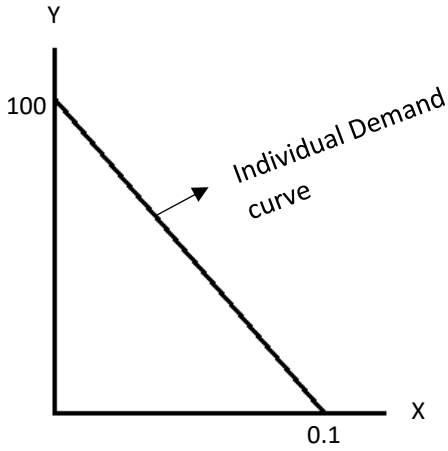
MD = buyer and quantity

IDDC

Q; = 10.1 – 0.1P = 10.1 → Q;

O = 10.1 – 0.1P

$= \frac{0.1P}{10} - \frac{10.1P}{1/10}$



P = 101

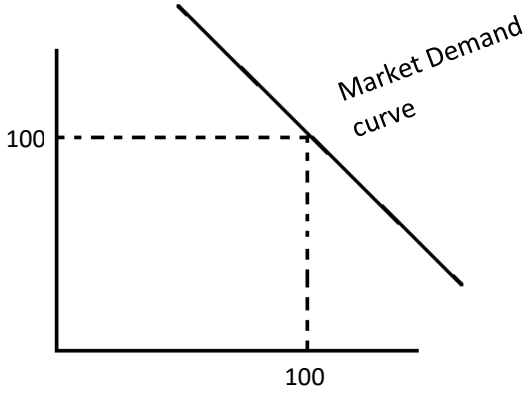
Market demand curve

MD = 101 – P

MD = 101 – 0

0 = 101

P = 101



5. The demand for tickets to an Ethiopian Camparada film is given by D(p)= 200,000-10,000p, where p is the price of tickets. If the price of tickets is 12 birrs, calculate price elasticity of demand for tickets and draw the demand curve

Given

Qd = 200,000 -10,000P

P = 12

Required

EDP drive curve

EDP = $\frac{\Delta Q}{\Delta P} \cdot \frac{Q;}{P;}$

Solution

200,000 – 10,000P

Qd = 200,000 – 10,000 (12)

= 200,000 – 120,000

Qd = 80,000

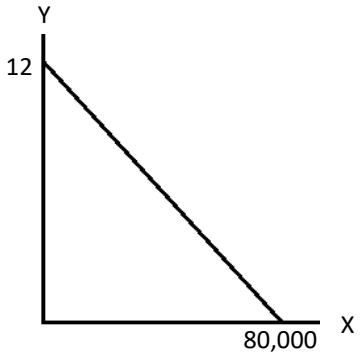
EDP = $\frac{\Delta Q}{\Delta P} \cdot \frac{Q;}{P;}$

= -10,000 x $\frac{12}{80,000}$

= $\frac{-120,000}{80,000}$

= 1.5

If EDP > 1 ⟶ demand elastic product axially good < 1 in necessary



6. Given market demand Q_d = 50 - P, and market supply P = Q_s + 5
   A) Find the market equilibrium price and quantity?

Given

Qd = 50 – P

Qs = P – 5

Required

Qd = Qs ⟶ Market equilibrium

Solution

Qd = 50 – p = Qs = p – 5

50 + 5 = P + P

55 = 2P

P = 27.5

Quantity

Qd = 50 – P & Qs = P – 5

50 – 27.5 & 27.5 – 5

Qd = 22.5 = Qs = 22.5

B) What would be the state of the market if market price was fixed at Birr 25 per unit?

Qd = 50 – P Qs = P – 5

Qd = 50 – 25 Qs = 25 – 5

Qd = 25 Qs = 20

- ✓ The purpose we have a shortage by the rate of 5

C) Calculate and interpret price elasticity of demand at the equilibrium point.

$$EPD = \frac{\Delta Q}{\Delta P} \cdot \frac{Q;}{P;}$$

$$= \frac{-1 \text{ x } 27.5}{22.5} = \frac{-27.5}{22.5}$$

$$= \left|\frac{-27.5}{22.5}\right|$$

$$= \frac{27.5}{22.5} = 1.2 \rightarrow \text{luxury product}$$

7. Based on the following table which indicates expenditure of the household on a commodity, answer the questions that follow (The price of the good is Br.10)

Income (Br. / month)	Quantity Demanded (units / month)
10,000	50
20,000	60
30,000	70
40,000	80
50,000	90

A) Calculate income elasticity of demand, if income increases from Br.10, 000 to Br. 20,000 and if income increases from Br.40, 000 to Br. 50,000.

$$Ied = \frac{\Delta Q}{\Delta I} \text{ X } \frac{I}{Q}$$

$$= \frac{60-50}{20{,}000-10{,}000} \text{ X } \frac{10{,}000}{50}$$

$$= \frac{10}{10{,}000} \text{ X } \frac{10{,}000}{50}$$

$$= \frac{10}{50}$$

$$= 0.5$$

$$\text{And} = \frac{90-80}{50{,}000-40{,}000} \text{ X } \frac{40{,}000}{80}$$
$$= \frac{10}{10{,}000} \text{ X } \frac{40{,}000}{80}$$
$$= \frac{40}{80}$$
$$= 0.5$$

B) Is this a normal or an inferior or a luxury good? Justify.
- **Normal**, because the product is **positive**

B) Does the proportion of household income spent on this good increase or decrease as income increases? Why?
- **Increase**, because 0.2 increase to 0.5

8. When price of tea in local café rises from Br. 10 to 15 per cup, demand for coffee rises from 3000 cups to 5000 cups a day despite no change in coffee prices.
A) Determine cross price elasticity.

$$CP_Ed = \frac{\triangle Q}{Q1+Q2} \text{ X } \frac{P1+P2}{\triangle P}$$
$$= \frac{Q2-Q1}{Q1+Q2} \text{ X } \frac{P1+P2}{P2-P1}$$
$$= \frac{5{,}000-3{,}000}{3{,}000+5{,}000} \text{ X } \frac{10+15}{15-10}$$
$$= \frac{2{,}000}{8{,}000} \text{ X } \frac{25}{5}$$
$$= \frac{1}{4} \text{ X } \frac{25}{5}$$
$$= \frac{5}{4} = 1.25$$

B) Based on the result, what kind of relation exists between the two goods?
- Direct relationship, because both are **increase**

Unit Three Review questions

Part One: Discussion questions

1. Explain briefly the following concepts.

Utility

- Utility Definition – It is a measure of satisfaction an individual gets from the consumption of the commodities. In other words, it is a measurement of usefulness that a consumer obtains from any good. A utility is a measure of how much one enjoys a movie, favorite food, or other goods. It varies with the amount of desire.
- It is basically of three types
  - ✓ **Total Utility: -** The sum of the total satisfaction from the consumption of specific goods or services. It increases as more goods are consumed.

- ✓ **Marginal Utility: -** It is the additional satisfaction gained from each extra unit of consumption. It decreases with each additional increase in the consumption of a good.
- ✓ **Average Utility: -** One can obtain it by dividing the total unit of consumption by the number of total units. Suppose there are total n units, then

Indifference curve

- It is a curve that represents all the combinations of goods that give the same satisfaction to the consumer. Since all the combinations give the same amount of satisfaction, the consumer prefers them equally. Hence the name Indifference Curve.
- An indifference curve depicts a line representing all the combinations of two goods that consumers place equal value. That is to say, they would be indifferent to either good. The consumer has no preference for either combination of goods on the same line because they are understood to provide the same level of utility to the consumer.

Law of diminishing marginal utility

- The law of diminishing marginal utility refers to the way that the first unit of a good/service that is consumed provides more utility than the following units of that good/service. The marginal utility thus "diminishes" with increased levels of consumption.

Budget line

- A budget line shows the combinations of two products that a consumer can afford to buy with a given income using **all of their available budget.**
- The gradient of the budget line reflects the relative prices of the two products.
- The gradient of a budget line reveals the opportunity cost.

Consumer preference

- Consumer preference is crucial to **Microeconomics**. Concepts such as utility, budget line, indifference curve, and indifference map sound complex at once but are easy to understand as can be. Let us understand Consumer Preference Theory to understand consumer behavior and how consumers make choices.
- **Consumer preference** is defined as a set of assumptions that focus on consumer choices that result in different alternatives such as happiness, satisfaction, or utility. The entire consumer preference process results in an optimal choice. Consumer preferences allow a consumer to rank different bundles of goods according to levels of **utility**, or the total satisfaction of consuming a good or service.

Marginal rate of substitution

- the marginal rate of substitution (MRS) is the amount of a good that a consumer is willing to consume in relation to another good, as long as the new good is equally

satisfying. It's used in indifference theory to analyze consumer behavior. The marginal rate of substitution is calculated between two goods placed on an indifference curve, displaying a frontier of utility for each combination of "good X" and "good Y."

2. What is the basic difference between cardinal and ordinal approach of Utility?
   - **Cardinal utility** is the utility wherein the satisfaction derived by the consumers from the consumption of good or service can be measured numerically. **Ordinal utility** states that the satisfaction which a consumer derives from the consumption of product or service cannot be measured numerically.
   - **Cardinal utility** measures the utility objectively, whereas there is a subjective measurement of **ordinal utility.**
   - **Cardinal utility** is less realistic, as quantitative measurement of utility is not possible. On the other end, the **ordinal utility** is more realistic as it relies on qualitative measurement.
   - **Cardinal utility**, is based on marginal utility analysis. As against this, the concept of **ordinal utility** is based on indifference curve analysis.
   - The **cardinal utility** is measured in terms of utile, i.e. units of utility. On the contrary, the **ordinal utility** is measured in terms of ranking of preferences of a commodity when compared to each other.
   - **Cardinal utility** approach propounded by Alfred Marshall and his followers. Conversely, **ordinal utility** approach pioneered by Hicks and Allen.
3. Elaborate the justifications for the negative slope and convexity of indifference curve.
   - It is negative, because the consumption level of one commodity can be measured only by reducing the conception level of the other commodity.
   - It are convex to the origin. The convexity of indifference curve implies that the two commodities are imparted substitution for each other and that marginal rate of substitution between the two goods decrease as a consumer moves along an indifference curve.
4. Standard indifference curves cannot intersect each other. Why?
   - Because if there are two goods say arrange and cooldrink holding arrange constant on indifference curve involving a grater amount of soft drink must give a grater satisfaction. Similarity, holding soft drink constant an indifference curve involving a grater amount of orange must give grater satisfaction.
   - These statement from the fact that goods and service both provide consumer benefits and reflects the more is better principle.
5. Does the change in income affect the slope of the budget line? Explain.
   - Does not affect, because the slop of the budget line (ratio of the two price) does not change when income rise or falls.

Part Two: Workout

A person has $ 100 to spend on two goods X and Y whose respective prices are $3 and $5.

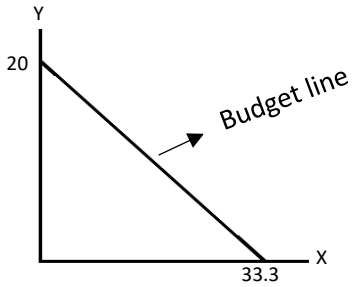
A. Draw the budget line.

P_x x X + Py x Y

3x + 5y = 100

5y = 100 – 3x

Y = 20 - $\frac{3}{5}x$



✓ When the consumer spends all of her income on good Y intercept at (0.20) similarity when the consumer spends all of her income on good x interact (33.3,0)

B. What happens to the original budget line if the budget falls by 25%?

$M = P_xx + P_yy$

100 = P3x + 5y

But income falls by 25%

Means 100 x 25%

= 100 x $\frac{25}{100}$

Income = 100 – 25

M = 75

So, 3x + 5y = 75

5y = 75 – 3x

Y = 15 - $\frac{3}{5}x$

Y = 15 - $\frac{3}{5}y_o$

Y = 15 means

Y = intercept

(0.15)

Y = 15 - $\frac{3}{5}x$

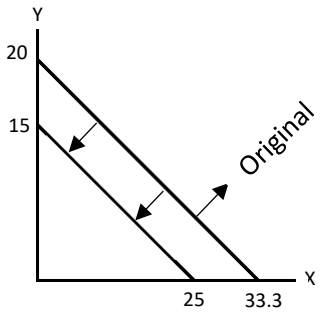
0 = 15 - $\frac{3}{5}x$

-15 = $\frac{3}{5}x$ X $\frac{-5}{3}$

-15 y $\frac{-5}{3}$ = $\frac{-3}{5}x$ X $\frac{-5}{3}$

X = 25 means

X intercept = (25.0)



- ✓ The budget line is in word because original income is decrease or fall

C. What happens to the original budget line if the price of X doubles?

$P_xx + P_yy = 100$

$P_x = 3 \times 2$ therefore

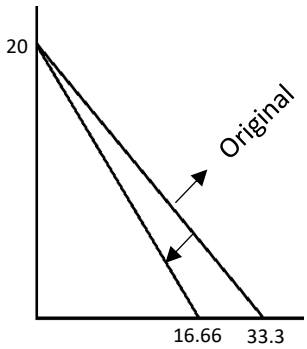
$6x + 5y = 100$

$5y = 100 - 6x$

$Y = 20 - \frac{6}{5}x$

Y intercept (0, 20)

X intercept (16.66, 0)



- ✓ In this cause the budget line is shift to left or in word but Asymmetric. Because one (y) is constant one (x good) is changed of price.

D. What happens to the original budget line if the price of Y falls to $4?

- ✓ In this cause also an (x) price constant. Y good price is changes

So, $M = P_xx + P_yy$

$100 = 3x + 4y$ because $5 - $1 = $4

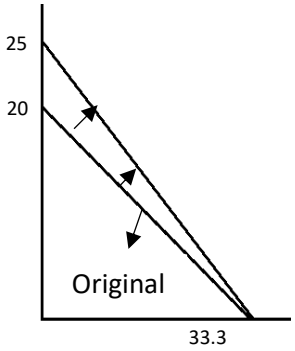
$100 = 3x + 4y$

$4y = 100 - 3x$

$Y = \frac{100}{4} - \frac{3}{4}x$

Y intercept = (0, 25)

X intercept = (33.3, 0)



- ✓ In this cause budget line is shift to the right or out ward but Asymmetric.

1. A rational consumer spends all of her income on two goods: Apple and Banana. Suppose the last dollar spent on Apple increased her total utility from 60 utils to 68 utils and the last dollar spent on Banana increased her total utility from 25 utils to 29 utils. If the price of a unit of Apple is 2 Birr, what is the price of a unit of Banana at equilibrium?

$\frac{MuX}{\text{Px}} = \frac{MuY}{\text{Py}}$

$\frac{MuApp.s}{\text{P ppp}} = \frac{Muo+Banana}{\text{Price+Banana}}$

$Mu = \frac{\Delta^{Tu}}{\Delta^{Q}}$ = Tu 68 – 60

Mu = 8

$\frac{MuX}{\text{Px}} = \frac{MuY}{\text{Py}}$ 29 – 25 = 4

$\frac{8}{2} = \frac{4}{\text{Py}}$

$\frac{8Py}{8} = \frac{80}{8}$ Py = 1 The unit price of Banana is = 1 Birr

2. Given utility function U= where P_X = 12 Birr, Birr, P_Y = 4 Birr and the income of the consumer is, M= 240 Birr.

   A. Find the utility maximizing combinations of X and Y.

   $P_xx + P_yy = 240$

   $12x + 4y = 240$ …….. equation (1)

   $\frac{MuX}{MuY} \frac{Px}{Py}$ = MuX = $\frac{du}{dx} x$

   $x^{0.5} x\ y^{0.5} = d\ x^{0.5} y^{0.5} = 0.5\ x^{0.5-1} y^{0.5} = 0.5\ x^{0.5} x^{-1} y^{0.5} = \frac{0.5x^{0.5}y^{0.5}}{y}$

   $\frac{MuX}{MuY} = \frac{\frac{0.5X^{0.5}y^{0.5}}{x}}{\frac{0.5x^{0.5}y^{0.5}}{y}} = \frac{0.5x^{0.5}y^{0.5}}{x} X \frac{Y}{0.5x^{0.5}y^{0.5}} = \frac{Y}{X}$

   $MURS_{xy} = \frac{Mux}{Muy} = \frac{Px}{Py} = \frac{Y}{X} = \frac{12}{4}$

   Y = 3x ……. Equation (2)

   Substitute

   $12x + 4y = 240$

   $Y = 3x$

   $\left.\begin{matrix} = \\ 4 \end{matrix}\right\}$ $12x + 4y = 240$

   $y - 3x = 0$

   $\frac{8y}{8} = \frac{240}{8}$

   Y = 30, X = 30 – 3x = 0

   $\frac{30}{3} = \frac{3x}{3}$

   x = 10

   B. Calculate marginal rate of substitution of X for Y ($MRS_{X,Y}$) at equilibrium and interpret your result.

   MURSxy = $\frac{Y}{X} = \frac{30}{10} = 3$

   MURSxy = $\frac{Px}{Py} = \frac{12}{4} = 3$ at equilibrium

3. Suppose a particular consumer has 8 birrs to be spent on two goods, A and B. The unit price of good A is 2 birr and the unit price of B is 1 birr. The marginal utility (MU) she gets from consumption of the goods is given below.

Quantity	MuA	MuB
1	36	30
2	24	22
3	20	16
4	18	12
5	16	10
6	10	4

A) Based on the cardinal analysis, what is the combination of the two goods that gives maximum utility to the consumer?

$$\frac{MuA}{PA} = \frac{MuB}{PB}$$

$$\frac{24}{2} = \frac{12}{1}$$

$$12 = 12$$

Check

PxX + PyY = M

4 + 4 = 8

8 = 8 it is true

But

$$\frac{MuA}{PA} = \frac{MuB}{PB}$$

$$\frac{20}{2} = \frac{10}{1}$$

$$10 = 10$$

Check

PxX + PyY = M

3x2 + 5y1 = M

6 + 5 = 11

$11 \neq 8$ it is false

✓ The utility is maximum Mp at

$$\frac{MuA}{PA} = \frac{MuB}{PB} = \frac{24}{2} = \frac{12}{1}$$

12 = 12 at equilibrium

Quantity	Mu_A	$\frac{MuA}{PA}$	Mu_B	$\frac{MuB}{PB}$	TuA	TuB
1	36	18	30	30	36	30
2	24	12	22	22	60	52
3	20	10	16	16	80	68
4	18	9	12	12	98	80
5	16	8	10	10	114	90
6	10	5	4	4	124	94

B) What is the total utility at the utility maximization level?

Tu = TuA + TuB at equilibrium point or maximum an utility.

60 = TuA

80 = TuB

Tu at maximum point (Level) = TuA + TuB = 60 + 80

Tu at maximum Level = 140

Unit Four: Review Question

Part one: Discussion questions

1. Compare and contrast the following concepts.
   a) Explicit cost and implicit cost

   - ✓ **Explicit Cost** is the cost which is actually incurred by the organization, during production. On the other hand, **Implicit Cost**, are just opposite to the explicit cost, as the organization does not directly incur them, but they are implied in nature which does not involve a cash payment. The former is an out of pocket cost, while the latter is an opportunity cost.
   - ✓ **Explicit Cost** refers to the one paid to the factors outside the firm. Conversely, **Implicit Cost** are the one that arise from using the asset rather than renting it out. There are a number of differences between explicit cost and implicit cost, which has been explained in the article presented below, have a look.
   - ✓ **Explicit Cost** is also known as out-of-packet cost while **Implicit costs** are known as imputed cost.
   - ✓ Explicit Cost can be easily ascertained, but it is just opposite in the case of Implicit Cost as it does not have any paper trial.
   - ✓ The measurement of **Explicit cost** is objective in nature because it is actually incurred whereas **Implicit cost** occurs indirectly and that is why its measurement is subjective.

   b) Economic cost and accounting cost

   - ✓ **Economic costs** include the same explicit costs that accounting costs use in calculations, but economic costs also include implicit costs. Implicit costs are those values that are not listed on the ledger, and they are assumed by the business to utilize resources. The idea with implicit costs is that the business could make more by using an asset in a different, more traditional fashion. A paper company with a tree grove could yield more money from the resource, if it sold lumber rather than if it harvested the trees for paper production.
   - ✓ **Accounting costs** are the explicit costs, also known hard costs that are seen as money out of your bank account that you need to run your business. These are production costs, lease payments, marketing budgets and payroll. In other words, these are the real costs in manufacturing, marketing and delivering your products.
   - ✓ Explicit costs have a monetary value and are easily identified on a bookkeeper's ledger. Accounting costs are generally real-time costs that are deducted from revenues in any given accounting period.

2. What is the main difference between fixed inputs and variable inputs?
   - ✓ **Fixed Inputs: -** They are the inputs whose quantity is constant for some period of time or constant for short run production function. Typically, fixed input will include plant and machinery, it may also include certain type of labor (contract base labor).

- ✓ **Variable Inputs: -** These are inputting whose quantity can vary, even in the short run or for short period of time. Example of these input are labor energy fuel etc.

3. Explain the law of variable proportions.

✓ The **law of variable proportions** states that as the quantity of one factor is increased, keeping the other factors fixed, the marginal product of that factor will eventually decline. This means that up to the use of a certain amount of variable factor, marginal product of the factor may increase and after a certain stage it starts diminishing. When the variable factor becomes relatively abundant, the marginal product may become negative.

✓ **Assumptions:** The law of variable proportions holds good under the following conditions:

- ❖ **Constant State of Technology**: First, the state of technology is assumed to be given and unchanged. If there is improvement in the technology, then the marginal product may rise instead of diminishing.
- ❖ **Fixed Amount of Other Factors**: Secondly, there must be some inputs whose quantity is kept fixed. It is only in this way that we can alter the factor proportions and know its effects on output. The law does not apply if all factors are proportionately varied.
- ❖ **Possibility of Varying the Factor proportions**: Thirdly, the law is based upon the possibility of varying the proportions in which the various factors can be combined to produce a product. The law does not apply if the factors must be used in fixed proportions to yield a product.

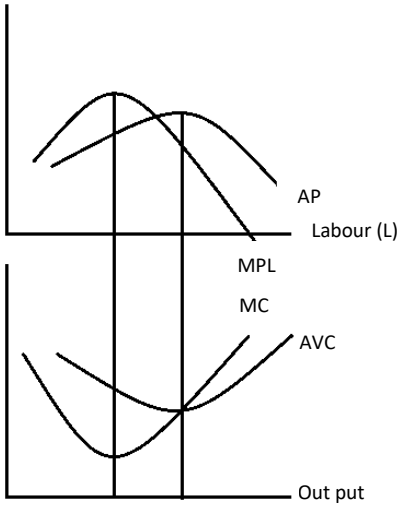
4. Which stage of short run production is efficient? Why?
   - ✓ Stage II because additional inputs are contributing positively to the total product but marginal product diminishing and positive.
5. Show the relationship between short-run MC and MPL both mathematically and graphically.
   - ✓ Show the relationship between sort run MC and MPC both mathematically and graphically

$$MC = \frac{\Delta TVC}{\Delta Q} \quad \text{When TVC = W.L}$$

$$MC = \frac{\Delta(W.L)}{\Delta(Q)} = \frac{W\Delta L}{\Delta Q} = \frac{W}{MPL}$$

Where $\frac{\Delta L}{\Delta Q} = \frac{1}{MPL}$

$\Rightarrow MC = \frac{W}{MPL} \longrightarrow$ There for they have inverse relationship



This graph shows

The inverse relationship between

1. AP and AVC
2. MP and MC

} Inverse cost and product relationship

6. Can accounting cost be greater economic cost? Explain.
   - ✓ **No**, because accounting cost is only considered direct expanse, whereas economic cost includes both implicitly cost and accounting cost.
7. The short run AVC, AC and MC are all U-shaped. Why?
   - ✓

Part Two: Workout

1. Suppose the production function is given by Q(L,K) = $L^{\frac{3}{4}} K^{\frac{1}{4}}$ Assuming capital is fixed, find APL and MPL.

A. $APL = \frac{TP}{L} = \frac{L^{\frac{3}{4}} K^{\frac{1}{4}}}{L}$

$APL = \frac{L^{\frac{3}{4}}}{L} . K^{\frac{1}{4}}$

$APL = L^{\frac{3}{4}-1} . K^{\frac{1}{4}}$

$APL = L^{\frac{-1}{4}} . K^{\frac{1}{4}}$

$APL = \frac{K^{\frac{1}{4}}}{L^{\frac{1}{4}}} = \left(\frac{K}{L}\right)^{\frac{1}{4}}$

B. $MPL = \frac{\Delta TP}{\Delta L} = MPL = \frac{\Delta(L^{\frac{3}{4}} . K^{\frac{1}{4}})}{\Delta L} = \frac{d(L^{\frac{3}{4}} . K^{\frac{1}{4}})}{dL}$

$MPL = \frac{3}{4} L^{\frac{3}{4}-1} . K^{\frac{1}{4}}$

$MPL = \frac{3}{4} L^{\frac{-1}{4}} . K^{\frac{1}{4}}$

$MPL = \frac{3}{4} \frac{K^{\frac{1}{4}}}{L^{\frac{1}{4}}} = \left(\frac{3K}{4L}\right)^{\frac{1}{4}}$

2. Consider the following short run production function:
   $Q = 6L2 - 0.4L3$
   a) Find the value of L that maximizes output
   - Output is maximize when MPL = 0

$$MPL = \frac{d(TP)}{dL} = \frac{d(6L^2 - 0.4L^2)}{dL}$$

$$MPL = 12L - 1.2L^2 = 0$$

$$L(12 - 1.2L) = 0$$

$$L = 0 \text{ or } 12 - 1.2L = 0$$

$$L = 0 \text{ or } L = 10$$

   - The answer is only 10. Because there is maximum output at 10 level of labour.

   b) Find the value of L that maximizes marginal product

$$MPL = 12L - 1.2L^2$$

$$MPmax = d(MPL) = 0$$

$$d(12L - 1.2L^2) = 0$$

$$12 - 2.4L = 0$$

$$12 = 2.4L$$

$$\frac{12}{2.4} = \frac{2.4L}{2.4}$$

$$L = \frac{12}{2.4}$$

$$L = 5$$

   c) Find the value of L that maximizes average product

$$APL = \frac{6L^2 - 0.4L^3}{L} = 6L - 0.4L^2$$

$$APmax = \frac{d(6L - 0.4L^3)}{L} = 0$$

$$APmax = 6 - 0.8L = 0$$

$$APmax = 6 = 0.8L$$

$$APmax \text{ when } L = 7.5$$

3. Given a short run cost function as $TC = \frac{1}{3} Q^3 - 2Q^2 + 60Q + 100$, find the minimum value of AVC and MC.

$$AVC = \frac{{}^1/_3 Q^3 - 2Q^2 + 60Q}{Q}$$

$$AVC = {}^1/_3 Q^2 - 2Q + 60$$

$$AVCmin = \frac{d(AVC)}{dQ} = 0$$

$$AVCmin = \frac{d({}^1/_3 Q^2 - 2Q + 60)}{dQ} = 0$$

$AVCmin = {}^{2}/_{3}Q - 2 = 0$

${}^{2}/_{3}\ Q = 2$

$Q = \frac{2}{\frac{2}{3}}\ 2\ .\ \frac{3}{2} = 3$

AVC is maximum when output is 3

$AVCmin = \frac{1}{3}\ (3)^2 - 2\ x\ 3 + 60$

$AVCmin = \frac{9}{3} - 6 + 60 = 57$

$AVCmin = 57$

$MC = \frac{d(TC)}{dQ} = Q^2 - 4Q + 60$

$MCmin = \frac{d(MC)}{dQ} = 0 = MCmin$

$2Q - 4 = 0 = Q = 2$

$MCmin = (2)^2 - 4(2) + 60$

$MCmin = 4 - 8 + 60$

$MCmin = 56$

Unit Five: Review Question

Part one: Discussion questions

1. Discuss the main assumptions of perfectly competitive market.
   - ✓ very large number of buyers and sellers.
   - ✓ Homogenous product.
   - ✓ Free entry and exit of firms
   - ✓ Perfect knowledge
   - ✓ Absence of transport cost
   - ✓ No government intervention
2. Describe the feature of monopolistic competition that resembles perfect competitive and the monopolistic market structure.
   - ✓ Feature Monopolistic competitive that resembles perfect computations are
     - Many callers and buyers
     - Easy entry and exit
     - Non price competition
   - ✓ Feature Monopolistic competitive that resembles monopolistic market structures.
   - ✓ Product deafferentations.
3. What is the difference between real and fancied differentiation. Explain using practical examples.
   - ✓ It is **real when there are slight differences** in the product of the firm as in taste if it is a foodstuff, or in quality etc.
   - ✓ It is **fancied if the difference** is just to attract the customer and not real differentiation, **for example**, differences in packaging, design etc. Firms in

such markets engage in active advertising to attract customers and to market their products.

4. What are the similarities and differences between oligopoly and monopolistically competitive market structure?

   ❖ The **similarities** between oligopoly and monopoly competition are:
   - ✓ They both exhibit imperfect competition in that oligopoly has few sellers while monopoly has many sellers.
   - ✓ Firms have some level of control over prices in both competitive structures.

   ❖ The major **differences** between the two include:
   - ✓ In monopolistic competitive structures the products and services are highly differentiated as compared to oligopoly competitive structures.
   - ✓ In oligopoly competition, the market is dominated by a few large entities while in a monopoly competition the market comprises many small entities. For example, the wireless communication industry in the U.S. has a number of entities but only a few dominate the market exhibiting an oligopoly competitive structure.
   - ✓ In oligopoly competition, there are higher barriers to entry while in monopolistic competition the market offers some freedom to entry or exit. For example, in an oligopoly, the barrier to entry may be presented through the government where policies are enacted to limit the number of entities in that particular industry.

5. A firm operates in a perfectly competitive market. The market price of its product is 4 birr and the total cost function is given by TC = $\frac{1}{3}$ $Q^3 - 5Q^2 + 20Q + 50$, where TC is the total cost and Q is the level of output.

   a) What level of output should the firm produce to maximize its profit?

   $\frac{1}{3} Q^3 - 5Q^2 + 20Q + 50$

   The derivative $\frac{3}{3} Q^2 - 10Q + 20 - 4 = 0$

   Q2 – 10Q + 16 = 0 factorize of this

   Q2 – 8Q -20 + 16 = 0

   Q(Q - 8) – 2 (Q + 10) = 0

   8 = 0 or Q – 2 = 0

   Q = 8 or Q = 2

   MC = Q2 – 10 +20 = 2Q – 10

   = 2 x 8 – 10 = 6

   When Q = 8 = 2(2) – 10 = 4 – 10

   = -6

   When Q = 2

   ✓ Then the equilibrium output level is Q = 8units

   b) Determine the level of profit at equilibrium.

   π = TR . Tc

   π = 32 ($^1/_3 Q^3 - 5Q^2 + 20Q + 50$)

   π = 32 - $^1/_3 Q^3$ $5Q^2 - 20Q - 50$

π = 32 - $^1/_3$(8)^3 5(8)^2 – 20(8) – 50

π = 32 – 172 + 320 – 160 – 50

π = 32 + 320 – 210 – 171

π = 352 – 381

π = - 29 Which indicate loss

c) What minimum price is required by the firm to stay in the market?

TC = $^1/_3$Q^3 – 5Q^2 + 20Q + 50

AVC = $\frac{TVC}{Q} = \frac{^1/_3Q^3}{Q} - \frac{5Q^2}{Q} + \frac{20Q}{Q}$

= $^1/_3$Q^3 – 5Q + 20

= $^2/_3$Q – 5 = 0

= $\frac{\frac{3}{3}}{\frac{2}{3}}$Q = $\frac{5}{\frac{2}{3}} = \frac{15}{2}$ = 7.5

Q = 7.5

✓ Average variable cost if minimum when output is equal to 7.5units = minimum market price

Unit Six: Review Question

Part one: Discussion questions

1. What is the difference between GDP and GNP? Which one is a better measure of the economic performance of a country?

✓ The key difference between GDP and GNP is that GNP considers the output of a country's citizens regardless of where that economic activity occurred. By contrast, GDP considers the activity within a national economy regardless of the residency of the producers.

✓ Consider the following situations, which GDP and GNP treat quite differently—the way they treat these situations forms the core of their difference from one another.

- **The net income receipts of foreign companies owned by foreign residents that produce goods in the country under study**. Since GNP only considers citizens of a country and their economic output, it does not include such companies in its measurement. However, GDP measures economic output regardless of country of residence—so it does include such companies in its measurement.
- **Companies owned by domestic residents producing goods for global consumption**. Think about companies like Apple, which produce goods for sale on the global economy and often remit their profits to places with favorable corporate tax laws like Ireland. Since GNP considers any and all output of domestic residents, it includes these companies and their economic activity occurs outside the country.

However, GDP only measures the economic output of a given nation's economy, so it does not consider this international activity, nor the money remitted to foreign economies.

- **Similarly, GNP will always include net income receipts from the international investments made by its residents whereas GDP will not**. Conversely, GDP will always include foreign investments within a country's borders, whereas GNP will not.

✓ Economists and investors are more concerned with GDP than with GNP because it provides a more accurate picture of a nation's total economic activity regardless of country-of-origin, and thus offers a better indicator of an economy's overall health. That said, GNP is still important, especially when comparing it alongside GDP from the same year.

2. What is unemployment? How can we measure it?
   - ✓ **Unemployment** occurs when people are without work *and* are actively seeking employment. In an economy, the labor force is the actual number of people available for work. Economists use the labor force participation rate to determine the unemployment rate.
   - ✓ Unemployment can be broken down into three types of unemployment:
     - ❖ **Cyclical unemployment:** occurs when there is not enough aggregate demand in the economy to provide jobs for everyone who wants to work.
     - ❖ **Structural unemployment:** occurs when the labor market is unable to provide jobs for everyone who wants to work. There is a mismatch between the skills of the unemployed workers and the skills necessary for the jobs available.
     - ❖ **Frictional unemployment:** the time period between jobs when a worker is looking for a job or transitioning from one job to another.
   - ✓ **Unemployment** is **measured** in order **to** determine the **unemployment** rate. The rate is a percentage that is calculated by dividing the number of **unemployed** individuals by the number of individuals currently employed in the labor force.

3. What is inflation? What are its causes? What is its impact on the economy?
   - ✓ **inflation** is a sustained increase in the general price level of goods and services in an economy over a period of time. When the general price level rises, each unit of currency buys fewer goods and services; consequently, inflation reflects a reduction in the purchasing power per unit of money – a loss of real value in the medium of exchange and unit of account within the economy. The opposite of inflation is deflation, a sustained decrease in the general price level of goods and services. The common measure of inflation is the **inflation rate**, the annualized percentage change in a general price index, usually the consumer price index, over time.
   - ✓ When prices rise for energy, food, commodities, and other goods and services, the entire economy is affected. Rising prices, known as inflation, impact the cost of living, the cost of doing business, borrowing money,

mortgages, corporate and government bond yields, and every other facet of the economy.

4. Discuss the three major differences between CPI and GDP deflator.
   - ✓ **The first difference** is that the GDP deflator measures the prices of all goods and services produced, whereas the CPI or RPI measures the prices of only the goods and services bought by consumers. Thus, an increase in the price of goods bought by firms or the government will show up in the GDP deflator but not in the CPI or RPI.

   - ✓ **The second difference** is that the GDP deflator includes only those goods produced domestically. Imported goods are not part of GDP and do not show up in the GDP deflator. For example, an increase in the price of Toyota made in Japan and sold in the U.K. affects the CPI or RPI, because the Toyota is bought by consumers in the U.K., but it does not affect the GDP deflator.

   - ✓ **The third difference** concerns how the two measures aggregate the many prices in the economy. The CPI or RPI assigns fixed weights to the prices of different goods, whereas the GDP deflator assigns changing weights. In other words, the CPI or RPI is computed using a fixed basket of goods, whereas the GDP deflator allows the basket of goods to change over time as the composition of GDP changes. To see how this works, consider an economy that produces and consumes only apples and oranges.

5. Consider the following information for a particular economy.
   Total population = 60 million
   Number of employed = 30 million
   Total labor force = 40 million
   Natural rate of unemployment = 12%
   a) Find the total unemployment rate

$$\text{Unemployment rate} = \frac{total\ unemployment}{total\ labour\ force}$$

Number of unemployed = total labour force – employed
= 40m – 30m
= 10million

$$\text{Unemployment} = \frac{No\ unemploed}{total\ lanour\ force} \times 100$$

$$= \frac{10\ million}{40\ million} \times 100$$

$$= \frac{100}{4}$$

$$= 25\%$$

   b) Calculate the cyclical unemployment rate
   Rate – Natural Unemployment rate
   = 25% - 12% = 13%

6. Consider an economy that produces and consumes **Bread** and **Automobile**. Data for two different years 2005 and 2010 is given in the following table.

Year	**2005**	**2010**
Price of Automobiles	$ 5000	$ 6000
Price of a loaf of bread	$10	$20
Number of automobiles produced	100	120
Number of loaves of bread produced	500,000	400,000

Using the year 2005 as a base year,

a) Calculate the nominal and real GDP of 2010.

Nominal GDP = (120 x 6,000) + (400,000 x 20)
= 720,000 + 8,000,000
= 8,720,000

Real GDP 2010 = (120 x 5,000) + (400,000 x 10)
= 600,000 + 4,000,000
= 4,600,000

b) Find the value of GDP Deflator for the year 2010 and interpret.

$$\text{GDP deflator} = \frac{\text{Nominal GDP}}{\text{Real GDP}} \text{ x } 100$$
$$= \frac{8{,}720{,}000}{4{,}600{,}000} \text{ x } 100$$
$$= \frac{8{,}720}{46}$$
$$= 189.56$$

- ✓ Shows the price in 2010 was 89,156 higher than the price in previous year.

c) Calculate the inflation rate in 2010.

CPs 2005 = 5,500,000
CPs 2010 = 10,600,000

$$\text{Inf. Rate} = \frac{\text{CPs2} - \text{CPI1}}{\text{CPI1}} \text{ x } 100$$
$$= \frac{10{,}600{,}000 - 5{,}500{,}000}{5{,}500{,}000} \text{ x } 100$$
$$= 92.72\%$$

It`s all about unit 1 – 6 review questions!!

Thank you!!