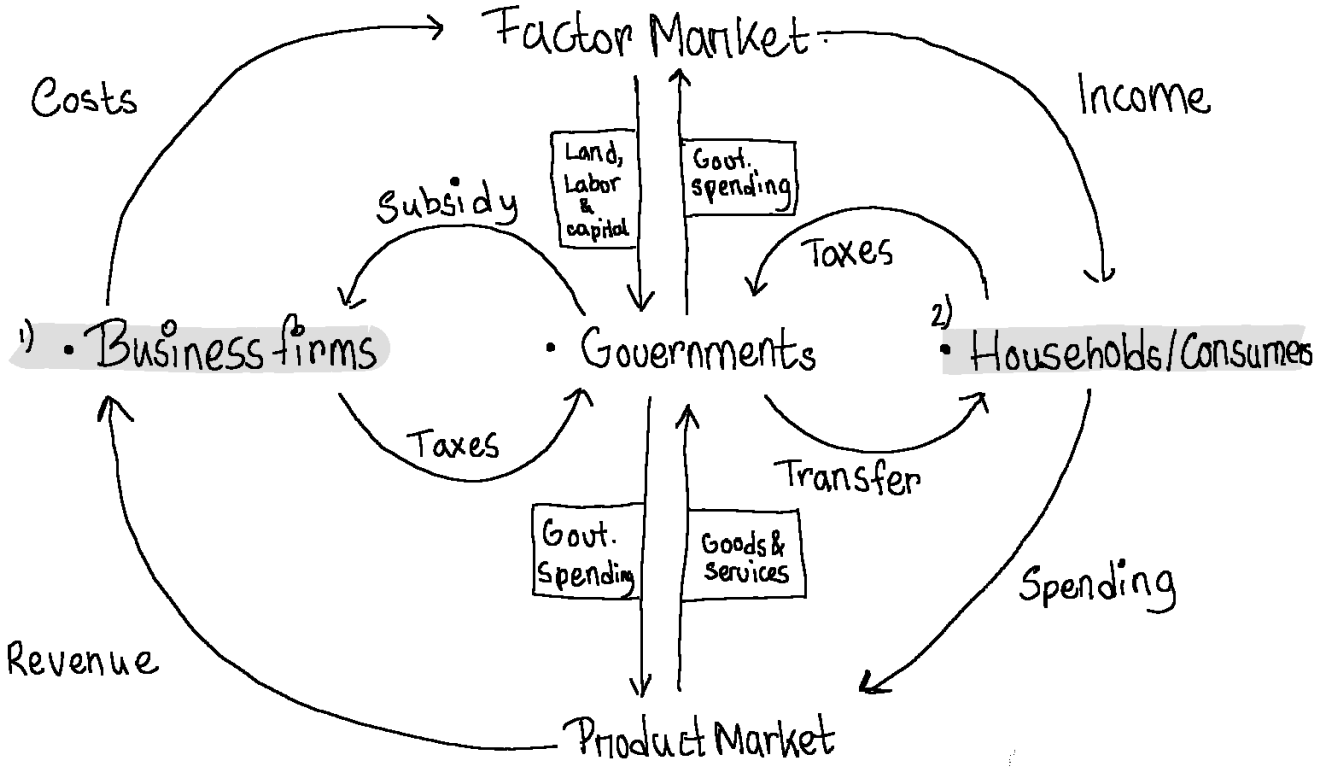
Table of Contents:

SCARCITY = 1.1

Q) What is economics? What is Microeconomics? Difference with macroecon?

Ans:-
- Study of production & exchange of goods & services.
- Study of how individuals, firms & societies make use of their scarce productive resources to best fit their unlimited material needs.
- Scientific study of human behavior and choices made to fulfill their wants & needs.
  - Microeconomics deals with individual actions - making & buying products, hiring another worker, shutting down, effect of government policies.
  - Macro looks at large scale, big patterns in terms of entire world or countries. Individual decisions are too small to see at this level

- **3 Types of economic actors:**



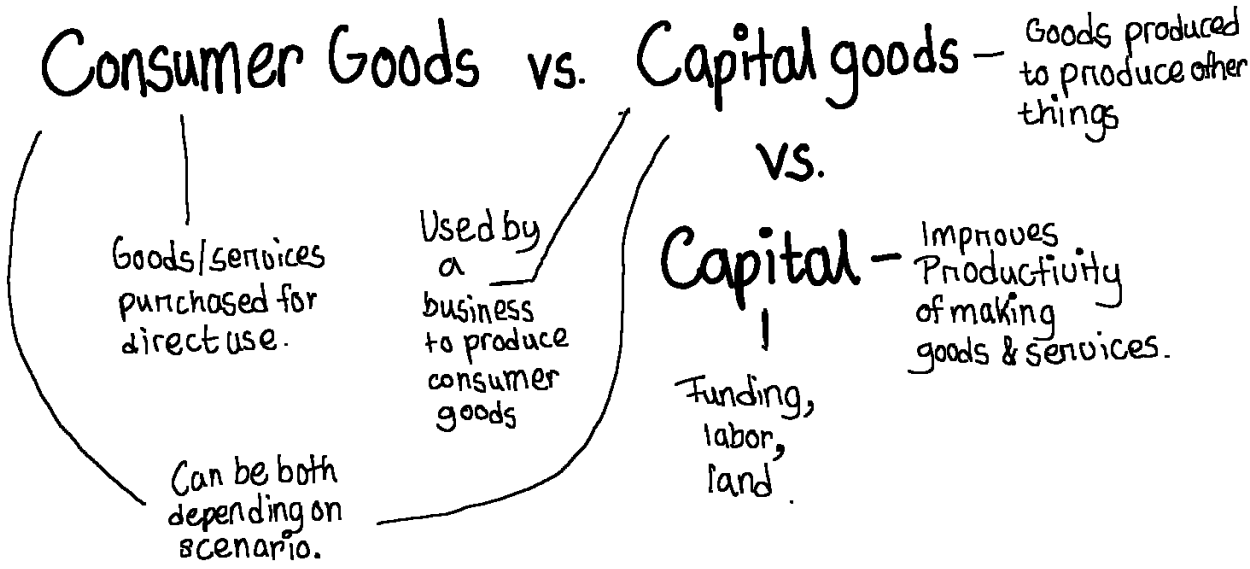
1) Every person acts at least in these two ways.
2)

4 Factors of Production: [The inputs required to produce output]

- ✓ **Land** → Natural resources.
- ✓ **Labor** → Human effort – physical & mental – augmented by education & training
- ✓ **Capital** → Resources that improve productivity.
- **Entrepreneurship / Technology** → The skill it takes & know-how to put the other resources together in a productive venture.

- **Circular Flow Diagram:** Illustrates the exchanges that occur continuously in the economy.
- **Scarcity:** The state of having limited resources but unlimited wants & needs.
- **Resources:** Raw materials, funding, labor & other elements necessary to produce the things people need.
- **Product Market:** Where consumers purchase goods & services from businesses.
- **Revenue:** Payment received by businesses from customers in exchange for the products.
- **Factor Market:** Place where business purchase what they need to produce their goods & services.
- **Factors of Production:** Necessary resources to produce any good or services.

- **Incentivize:** to motivate or encourage someone thru the possibility of some kind of gain (incentive)
- **Subsidy:** Government money grants to business to influence their operations in some way.
- **Transfer payment:** Government money grants to households to influence their behavior in some way.



Example Practice: [Grocery store]

Land: Floor, iron chassis for roofs & storage, electricity.
Labor: Cashier, security guards & cleaner.
Capital: Trolleys, racks, delivery van, cashier computers.

Positive vs. Normative

science

Positive
- Posits whats the case
- Testable & verifiable.

Normative
- States what is normal or appropriate
- Opinionated.
- Can't be tested.

* AP focuses on Positive economics.

Rival vs. Non-Rival

goods

Rival
- Not a lot people use it.
- Scarce
- One person's consumption interferes with other people's consumption of that resource.
- (e.g. Berry)

Non-Rival
- Everybody can use without interference
- NOT Scarce

RESOURCE ALLOCATION & ECONOMIC SYSTEMS

1.02

* Problem of scarcity has resulted in careful resource allocation

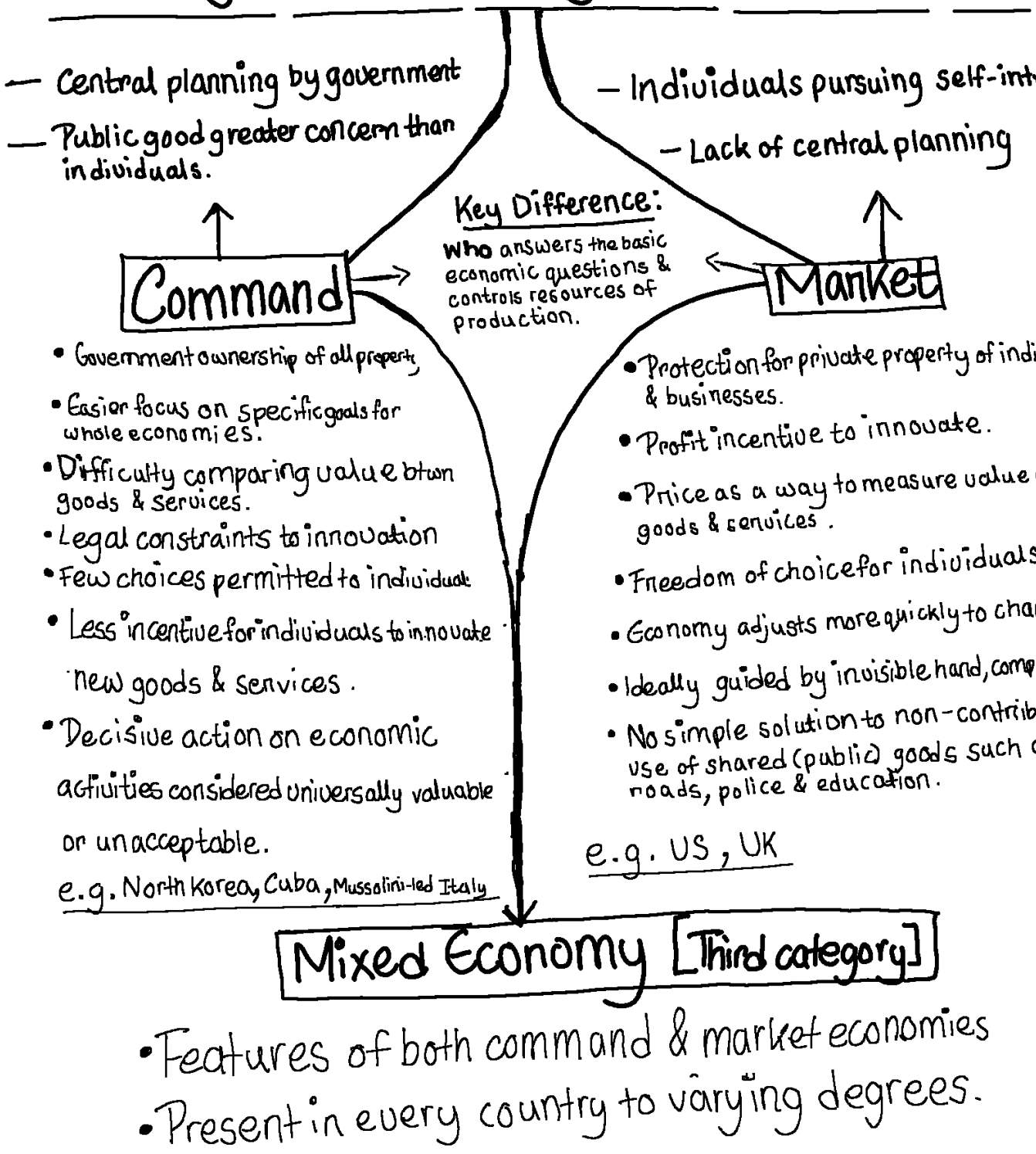
Three Basic Economic questions:

1) What goods & services do we produce?
2) How do we make these goods & services?
3) Who consumes these goods & resources?

Economic systems:

- A system is any group of things organized in a particular way.
  - Key to understanding system - identifying what & the ways things are being organized
- Economic systems organize based on the history & culture of the people who make up the system.
  - Comparable to the justice system.

Two broad categories of economic systems in determing resource allocation



Definitions

- **Resource Allocation:** Distribution/placement of scarce factors of production.
- **Production:** Whole process of making goods, including capital goods or providing service from scarce resources.
- **Consume:** Use of a good or service.
- **Distribution:** Whole process of delivering goods from where they are produced to where consumers purchase.
- **Constraints:** A limit on the availibility of or ability to do something.
- **Economic system:** A set of institutions that answers the basic questions for the society; a.k.a economy
- **Institutions:** A traditional or common method for doing something.
- **Coordinating mechanism:** Whole set of institutions that determine resource allocation
- **Command System:** Central planning by the government using involuntary laws, taxation & restrictions.
- **Market system:** Price is determined by voluntary negotiation of buyers & sellers. Protection for private property & control of resources by households
- **Mixed economy:** A system for distribution & production of goods & services for a society depending both on central planning & free markets.
- **Self-interest:** Personal wants or needs.
- **Invisible hand:** Adam Smith's metaphor for a person's self-interest guiding him (like an invisible hand) to provide him the good/service most valued by his neighbours. Basically persuing one's own interest will end up providing most value to society overall.
- **Property rights:** Individual ownership of property protected in law.

PRODUCTION POSSIBILITIES [PPC] CURVE - 1.3

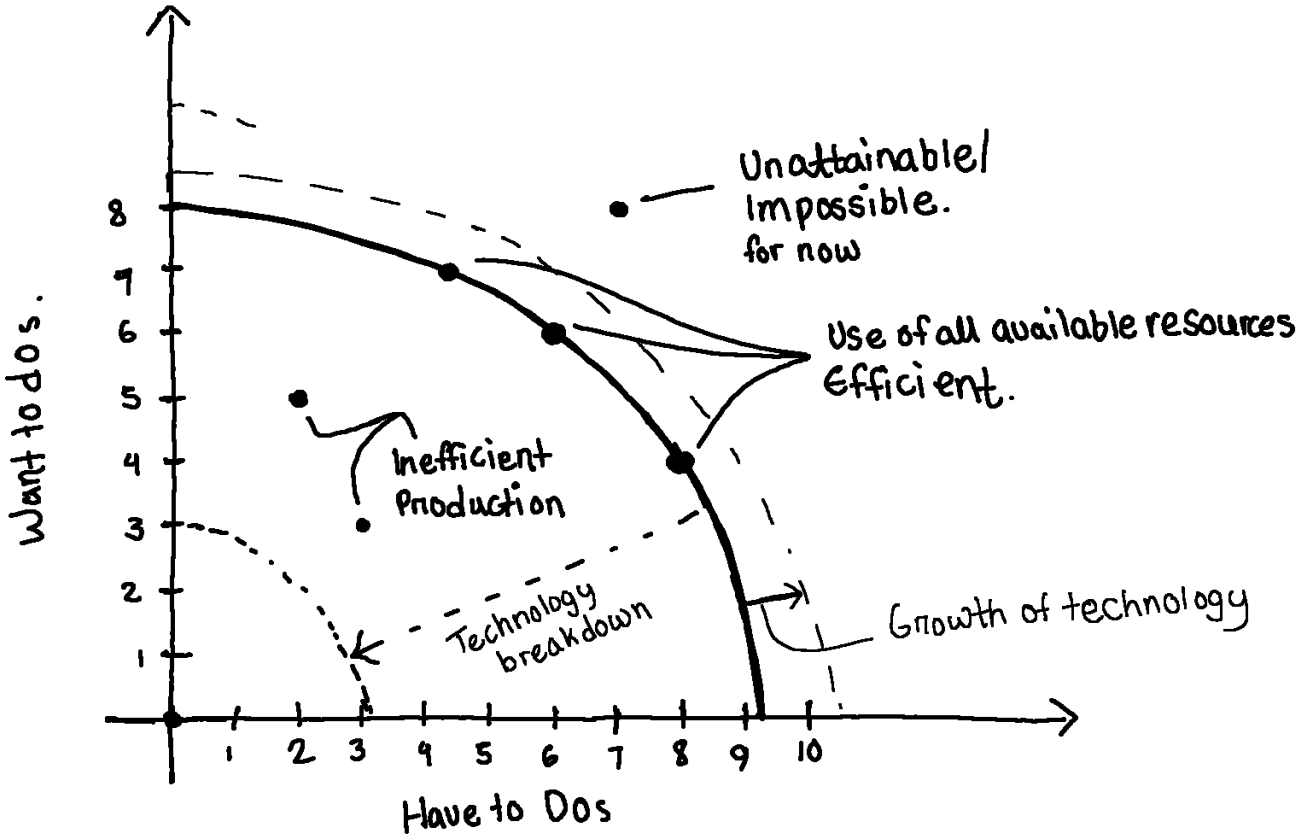
- Production possibilities curve (PPC)

  A.k.a Production possibilities frontier OR
  ---- Production possibilities boundary — is a graph illustrating the possible output combinations of 2 goods based on a set amount of resources.

* When identifying oppurtunity cost using PPC, each good's cost is always stated in terms of the other.

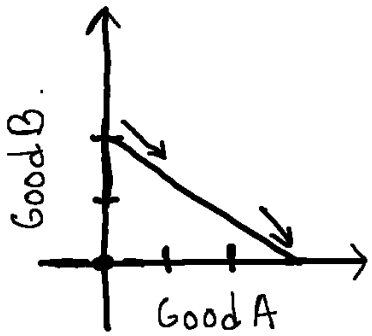
  e.g. Oppurtunity cost of going to an hour of nap is an one hour of study time.

BIG INSIGHTS OF PPC:



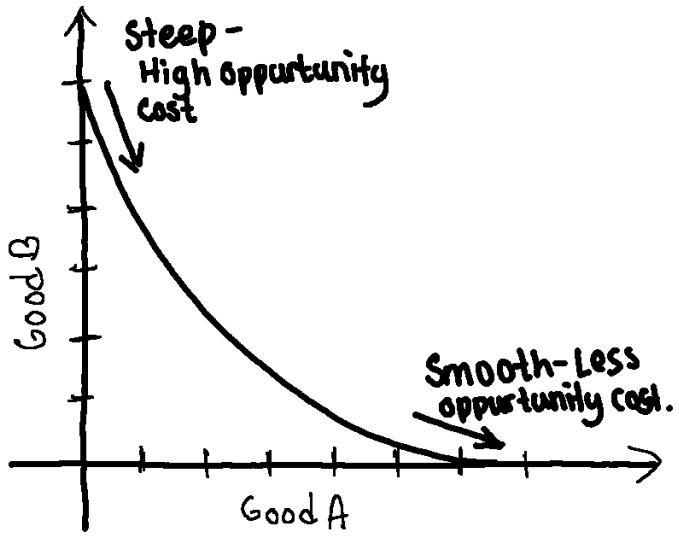
- Always use same scale.
- Always label axes & lines
- Positive slope ⟶ Direct relationship.
- Negative slope ⟶ Inverse relationship.

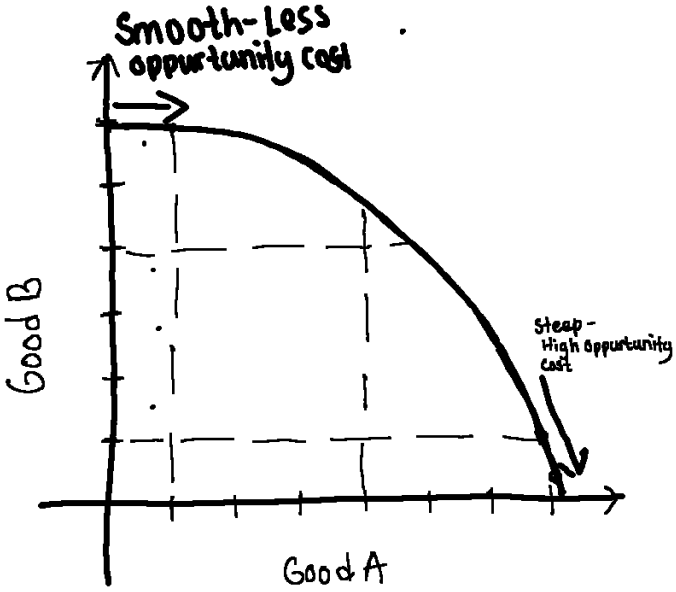
* Technology is an important limit on inputs in a PPC.



Constant Opportunity Cost:

Producing 1 unit of Good A, will cost 1 unit of Good B.





Increasing Opportunity Cost:

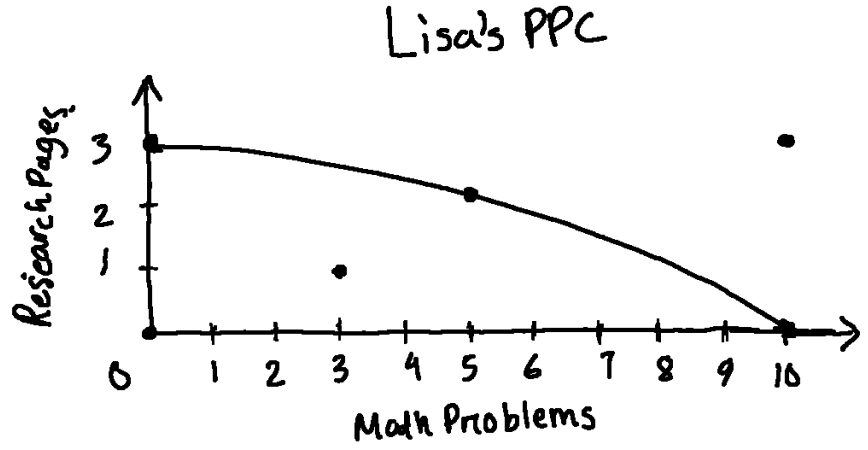
- Producing each additional unit of Good A results in less cost in units of Goods B relatively
- Higher marginal opportunity cost.
- Common graph

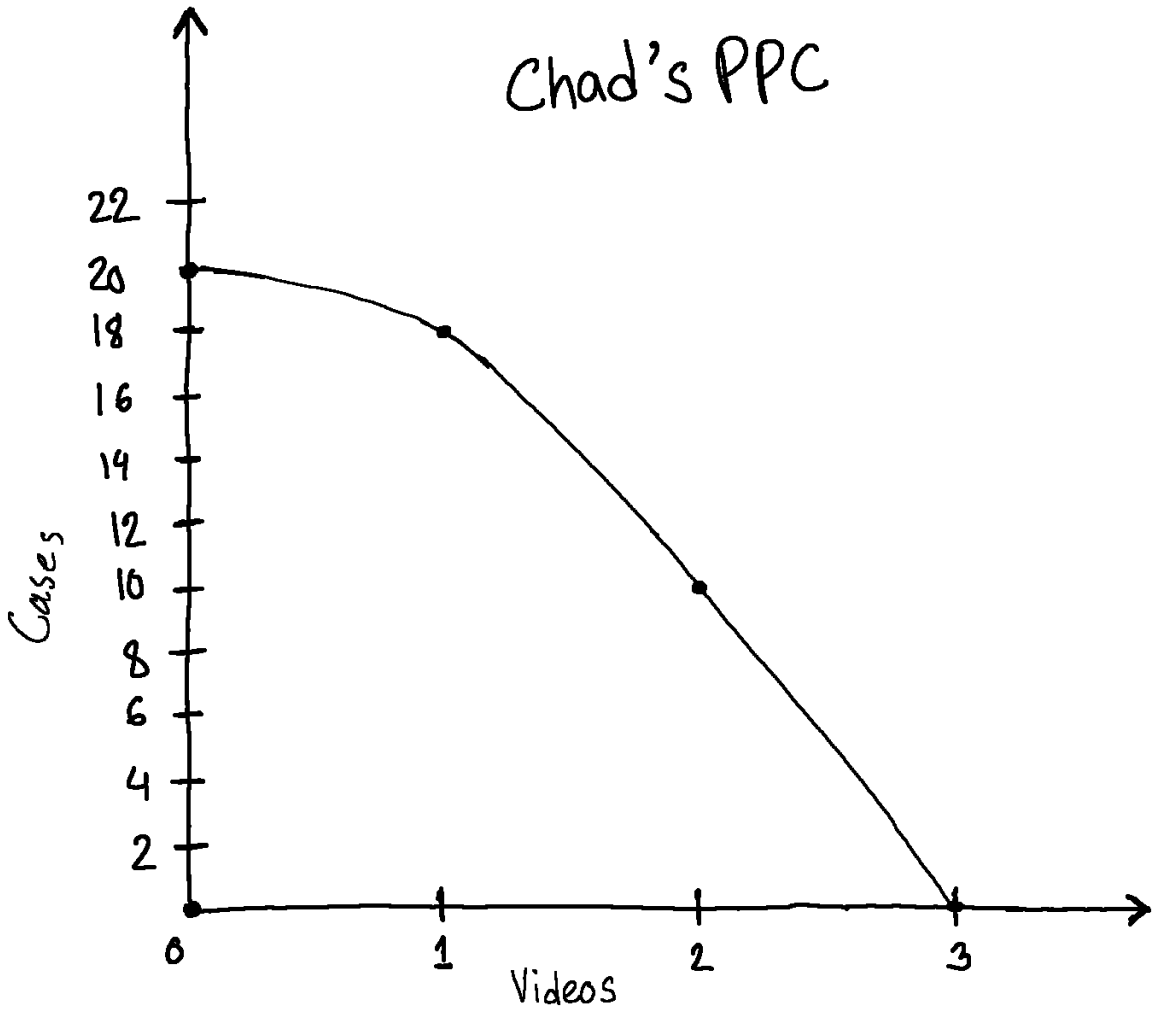
Decreasing Opportunity Cost:

- Producing each additional unit of Good A results in less cost in units of Goods B relatively
- Less marginal opportunity cost.
- Rare graph.

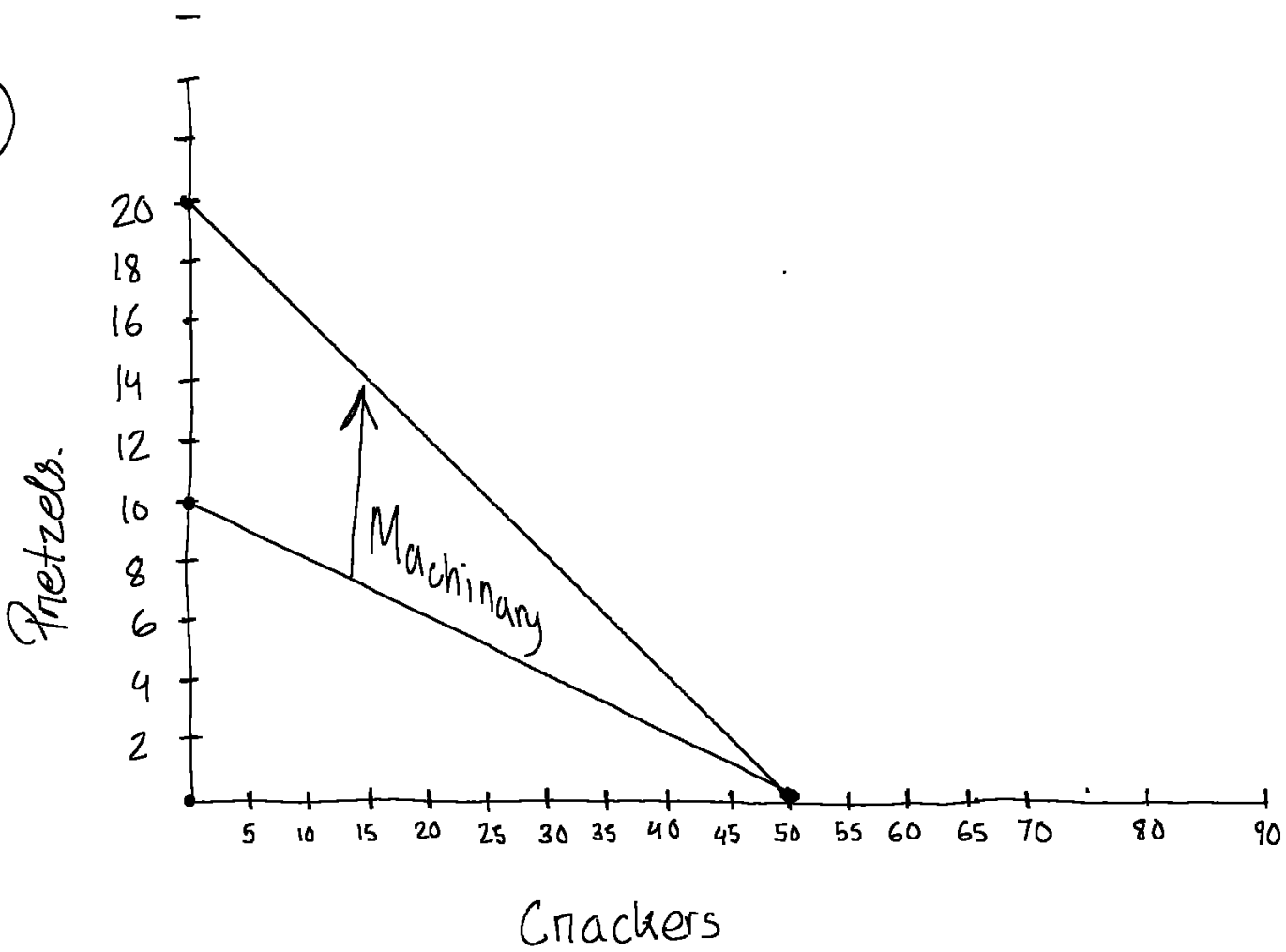
* In order to get more of anything, one must generally give an ever increasing quantities of alternatives.

- Marginal: at the edge, usually indicating the next unit.
- Opportunity cost: The next best alternative sacrificed or foregone in any choice.



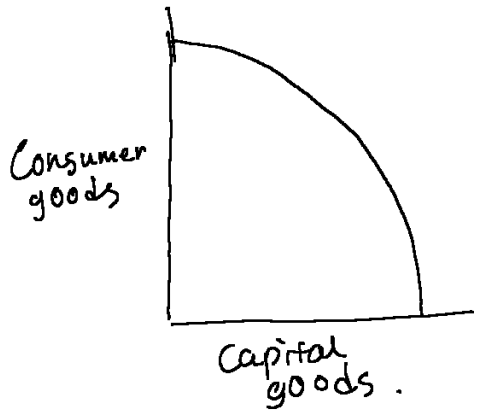


3)



- His opportunity cost of making only crackers increased by 2 times.
- His opportunity cost of making only pretzels increased by 2 times.

4) (c). As more consumer goods are produced, the amount of capital goods given up increases.

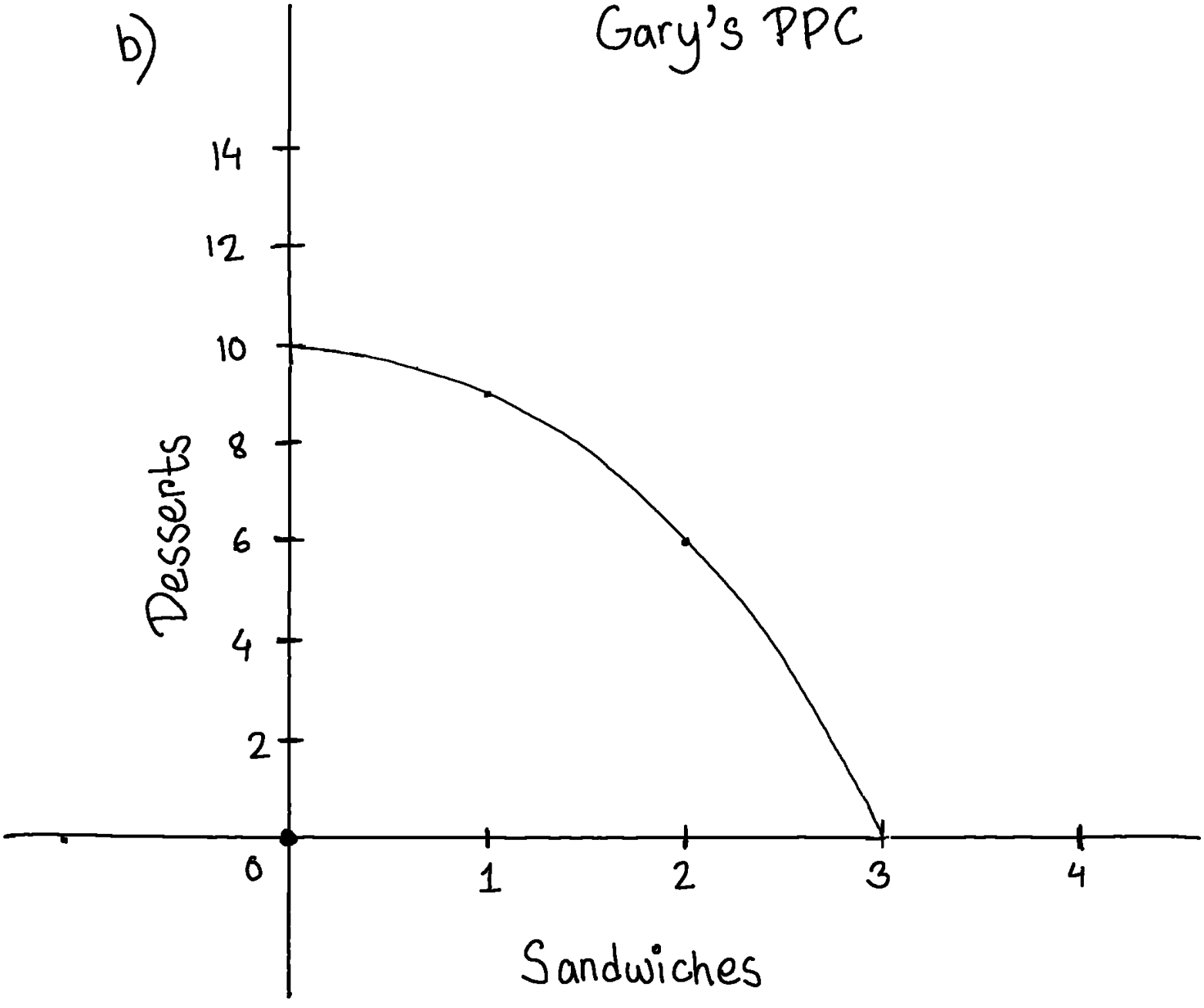


OPTION 1

a) Oppurtunity cost of going from 2-3 sandwiches

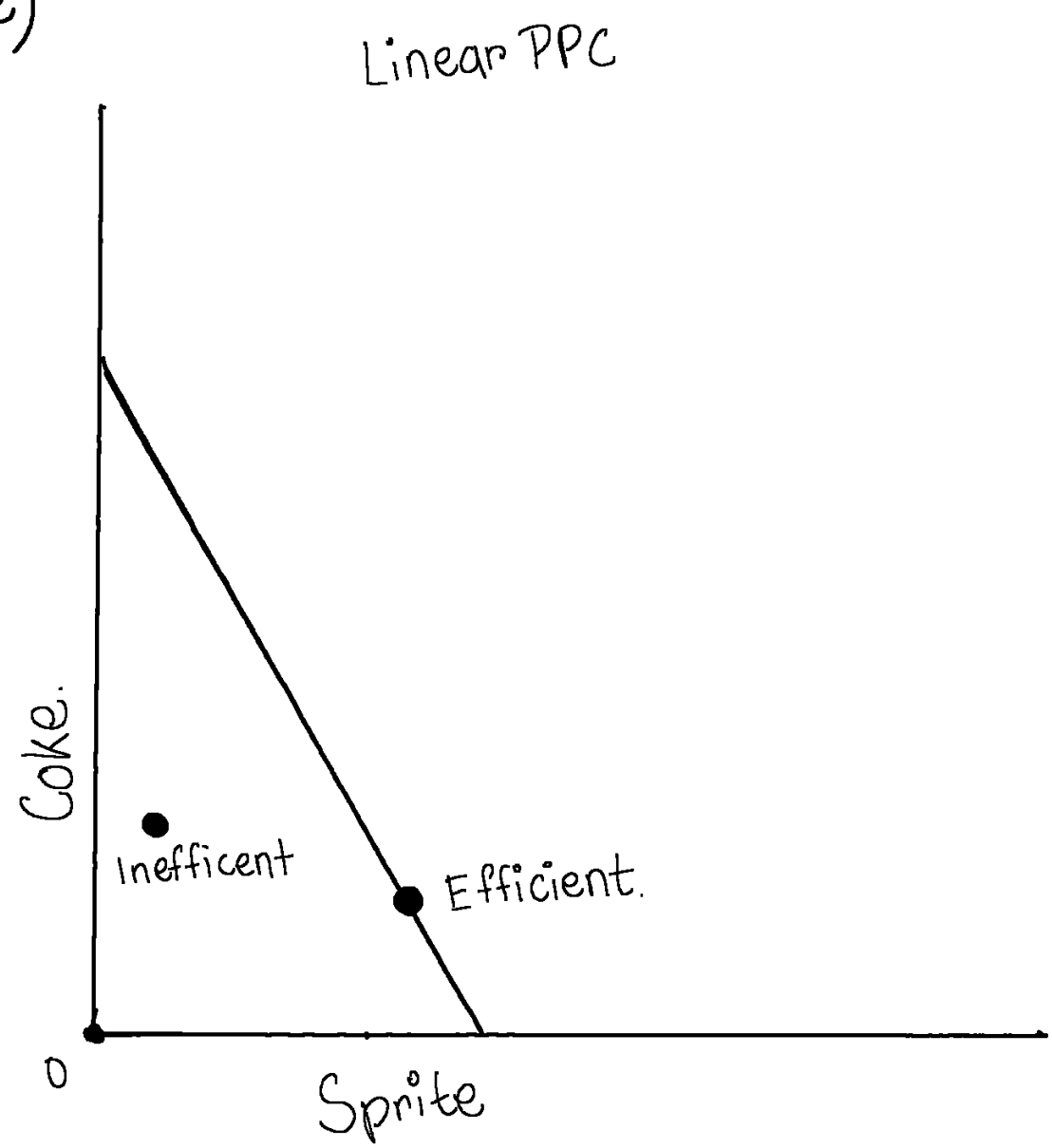
$= \frac{6-0}{3-2} = \frac{6}{1} =$ 6 Desserts

b)



c) This PPC indicates increasing opportunity cost because its a bowed out curve which means with every additional sandwich made, the curve gets steeper and steeper — increasing the relative number of trade-offs of desserts made.

d & e)



COMPARATIVE ADVANTAGE & TRADE = 1.4

- Mutual benefits (×2) parties by allowing them to consume in the unattainable area beyond their current PPC.

- Specialization & trade are determined by comparative advantage.

- Having comparative advantage & focusing on that doesn't affect PPC. Nor does trade affect producing beyond PPC.
  — Trade does allow consuming beyond PPC.

* Economists consider it as a matter of fact that all the time people, business & whole countries produce goods & services for themselves that they could get through trade at a much lower cost.

- Carla & Jenny both make bracelets & earings. In the same amount of time, Carla can make 5 bracelets or 10 earrings, while Jenny can make 5 bracelets or 5 earrings. Determine absolute & comparative advantage.

Ans:

	Carla	Jenny
Bracelets	5 (2)	5 (1)
Earnings	10 (0.5)	5 (1)

Absolute advantage: Carla has over Jenny in Earring production (10 v 5)

Comparative advantage:
- Jenny has comparative advantage over Carla in Bracelet production. (1 v 2)
- Carla has comparative advantage over Jenny in Earring Production. (0.5 v 1)

= This is an output problem where opportunity cost is calculated using: →

$$\text{Good A Opportunity cost} = \frac{\text{Good B foregone}}{\text{Good A produced}}.$$

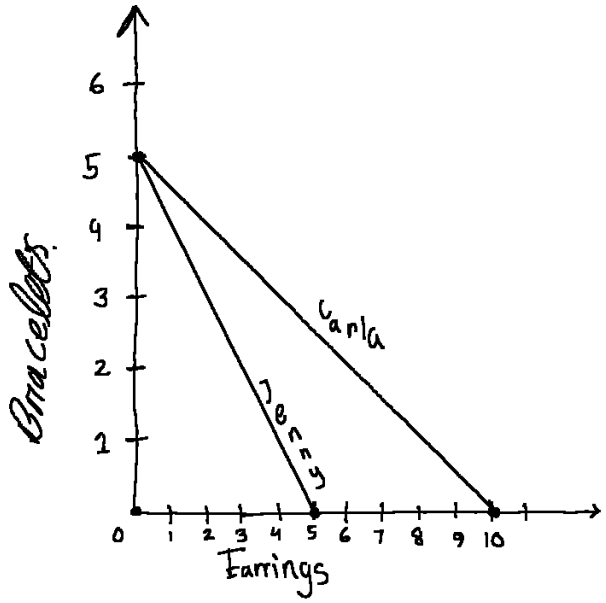
= For input problems →

$$\text{Opportunity cost of Good A [resource]} = \frac{\text{Resource A}}{\text{Resource B foregone}}$$

Terms of Trade:

- It will be only worth it for someone to trade if the good received costs them less than making it themselves.

- **Absolute advantage:** Ability to produce more of a certain good with same/fewer resources
- **Comparative advantage:** Ability to produce smth with a lower opportunity cost than someone else
- **Irrational:** Illogical / Senseless.
- **Specialization:** the designation of resources & workers to specific tasks to produce in a more efficient & productive way.
- **Mutual Benefits:** when both parties profit or gain from an exchange.
- **Terms of Trade:** The precise figures of how much of each good is exchanged.



	Carla	Jenny
Bracelets	5 (2)	5 (1)
Earnings	10 (0.5)	5 (1)

Bracelets receiving :- $1 < n < 2$

Earring receiving :- $0.5 < n < 1$.

$1b = 2e$

$\boxed{1e = 0.5}$

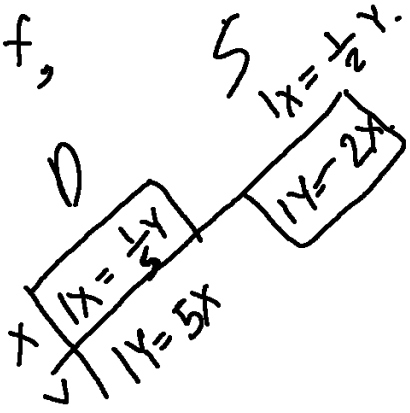
$\boxed{1b = 1e}$

$1e = 1b$.

- If Carla made bracelets herself, she would pay 2 earrings

  So 2 earring she will pay 1

- If Jenny —— Earrings herself, she would pay 1 bracelet



a) $\frac{1}{4}$

b) 4

c) 1.25

d) 0.8

1) France

2) Swi22

3) France

9)

	France	Swiss
Cheese	1 $\times 3$	1 $\times 2$
Chocolate	3 $\times \frac{1}{3}$	2 $\times \frac{1}{2}$

$2 < 3$

	France	Swiss
Cheese	6 $\times 3$	10 $\times 2$
Chocolat	2 $\times \frac{1}{3}$	5 $\times \frac{1}{2}$

OPTION 1

a) India has an absolute advantage (10 v. 5)

b)

	Peanuts	Pecans
India	$\frac{1}{10} = 0.1$	$\frac{10}{1} = 10$
U.S.	$\frac{10}{5} = 2$	$\frac{5}{10} = 0.5$

Fig: Table of Oppurtunity Costs.

India → · Oppurtunity cost of making 1M peanuts is 0.1M Pecans
· Oppurtunity cost of makig 1M Pecans is 10M Peanuts

U.S. → · Oppurtunity cost of making 1M peanuts is 2M Pecans
· Oppurtunity cost of makig 1M Pecans is 0.5 M Peanuts

c)

	Peanuts	Pecans
India	$\frac{1}{10} = 0.1$	$\frac{10}{1} = 10$
U.S.	$\frac{10}{5} = 2$	$\frac{5}{10} = 0.5$

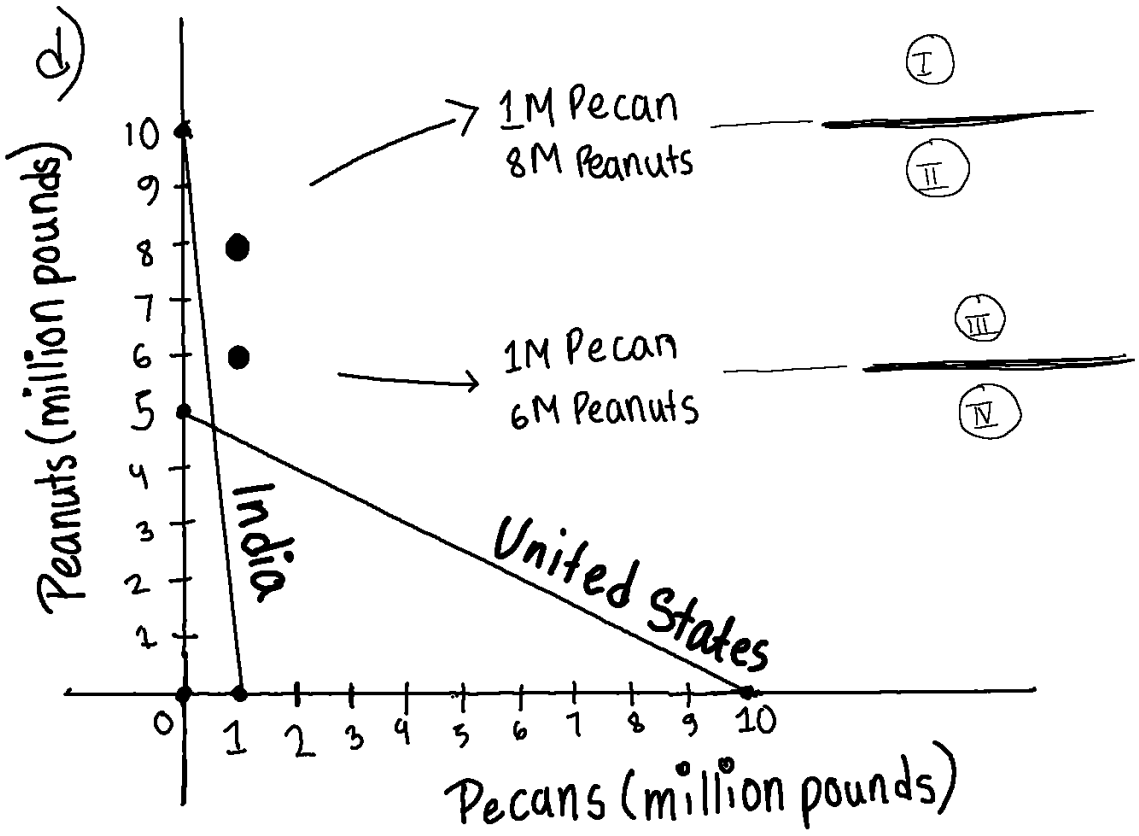
- The U.S. would specialize in Pecans because it has a comparative advantage.

	Peanuts	Pecans
India	$\frac{1}{10} = 0.1$	$\frac{10}{1} = 10$
U.S.	$\frac{10}{5} = 2$	$\frac{5}{10} = 0.5$

Shortcut:
Look at the product row/column across both entities
→ ONE PRODUCT BY ONE. ONLY to determine range of each product to be traded

- The U.S. will exchange less than 2M pounds of pecans but more than 0.1M for India to benefit.
- India will exchange less than 10M peanuts but more than 0.5M peanuts for the U.S. to benefit.

- U.S → $0.1M < n < 2M$ Pecans
- India → $0.5M < n < 10M$ Peanuts.



e)

[Numbers represent million pounds of the product]

(I) Now that India is trading away 8 peanuts, it is receiving 1 pecan in return. If they produced that pecan domestically, it would have to forgo 2 more peanuts for a total of 10 peanuts

(II) Now that U.S. is trading away 1 pecan, it is receiving 8 peanuts in return. They could not possibly have produced those domestically as 5 is the max Peanuts allowed by PPC.

(III) Now that India is trading away 6 peanuts, it is receiving 1 pecan in return. If they produced that pecan domestically, it would have to forgo 4 more peanuts for a total of 10 peanuts

(IV) Now that U.S. is trading away 1 pecan, it is receiving 6 peanuts in return. They could not possibly have produced those domestically as 5 is the max Peanuts allowed by PPC.

In both cases, India is consuming higher pecans than with forgoing same number of peanuts locally.

In both cases the US is consuming higher peanuts than it can produce

COST-BENEFIT ANALYSIS = 1.5

Total Costs:

- Sum of both explicit / accounting costs and implicit cost / foregone alternative.

Explicit Costs + Implicit Costs = Total Costs.

Revenue → Money, sales.

- Business measures its benefits in net profit.
- Consumer measures its benefits in net utility.

Total Benefits − Total Costs.

* Don't get confused when u see a question where consumer gets a total benefit measured in dollars.

- Accounting costs are the actual expenditures of production, the numbers in the spreadsheets & bank transactions. Business owners, stockholders & tax collectors usually are the ones who care.
- Economic costs include all implicit & explicit costs.
- Oppurtunity cost → cost of next best alternative.

Utility vs. Benefit:

- Abstract measurment in utils
  - Different for every person.
- Greater or equal to payment for a good/service.

- Consumers care about getting the MOST utils/dollar.

Utility maximizing choice.

margin → 'next'

- Explicit costs: a.k.a Accounting cost – All expenses directly spent on an action
- Implicit costs: The most valuable economic activity th did not occur because of a choice.
- Utility: Personal satisfaction gained from an economic action; usually a purchase. [Broadly means usefulness]
- Utils: A unit of measure of consumers' personal satisfaction in economics.
- Net: Excess that remains after costs are subtracted from benefits; profit.
- Utility maximising choice: the action that gains the consumer the largest total utility or utils/dollar.

3. Why is a free app so much more attractive than a superior phone app that costs $1?

Ans: Utils / dollar is infinite for the free app compared to the priced app.

$$\frac{\text{Utils}}{\$0} = \infty$$

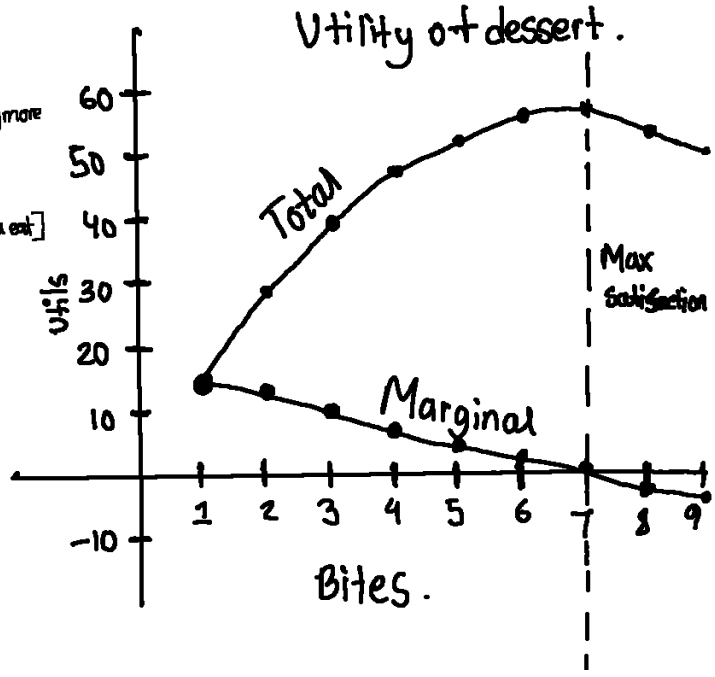
4. Total Cost $\longrightarrow$ \$635 000.
Profit $\longrightarrow$ \$50000

Economic Cost $\longrightarrow$ \$635 000 + \$(125 000 - 50000)
$\longrightarrow$ \$635 000 + \$75000
$\longrightarrow$ \$710 000
Loss $\longrightarrow$ \$685000 - \$710000
$\longrightarrow$ - \$25000.

MARGINAL ANALYSIS & CONSUMER CHOICE = 1.6

- Value is not constant for any consumer good as more of it is consumed.
- -As long as marginal utility is +ve, total utility increases.
- - When marginal utility is 0, total utility stops changing.
  - While marginal utility is -ve, total utility decreases.

Bite	Marginal Utility	Total Utility	Comments.
1	15	15	mmm
2	14	29	So good
3	10	39	nom nom nom
4	8	47	nom nom
5	5	52	I shouldn't have any more
6	3	55	One more bite
7	1	56	Ah-fam
8	-2	54	Ugh- [Parent makes u eat]
9	-3	51.	Groaning



Model of rational consumer choice:

- **Maximizing:** total benefit is the goal for consumers
- **Constraints:** because of (limited) time & money require consumption choices.
- **Diminishing:** marginal utility exists in each good.
- **Combinations:** of purchases are determined by equating the marginal utility of the last dollar spent on each good.
- **Option:** Next optimal purchase is the one that has the most utils/dollar.

* Constraints are imminent because of scarcity - scarce resources.

Marginal Analysis

A process to determine the optimal combination of purchases for goods with different marginal utility curves.

- First, determine the Mu/P ([Marginal Utility][Price]) for each good (Benefit per dollar)
- Second, be aware of the constraint like a specific budget $.
- Third, compare Mu/P between each good & opt for the highest Mu/P every time.
- Fourth, subtract price of the opted good based on highest Mu/P from budget.
- Fifth, set the result as the new budget & cross out the specific unit of the good chosen. (So you won't compare that unit anymore).
- Repeat 3rd to 5th Steps until you reach budget of 0.
- Check the number of crosses made on each good to find out the combination that maximizes consumer benefit.

Utility maximizing rule / Optimal consumption rule:

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$$

- For any goods x & y, buy combo of goods that equalizes them based on the Mu/$ or close to it as possible.

* Budget constraints often do not permit perfect equalization of marginal utils per dollar between 2 goods.
  - When you equalize the 2 ratios, it makes it clear which good should be chosen - the one that maximizes your overall benefit or utility, gained.

- For every economic actor, economists recommend stopping when marginal cost is equal to marginal benefit.

- **Law of diminishing marginal utility:** The principle that as more & more of an input is used in short-term production, the marginal product declines.
- **Marginal utility:** The personal satisfaction a consumers gains by consuming one additional unit.
- **Total Utility:** the sum of all marginal units of satisfaction consumed upto to a certain point.
- **Model of rational consumer choice:** When consumers act in their own best interest, as economists understand it.
- **mnemonic:** Way to remember a thing, such as an acronym or a rhyming couplet.
- **Irrational:** Illogical, or senseless

- **Fixed cost:** Input costs that do not change based on the amount produced or in the period of time under consideration.
  A.k.a. "Sunk costs"

OPTION 1

a) John should optimally buy **5 slices of pizza**. Firstly, as the sixth slice would not be any benefit to him because its 0 utils, it would irrational for him to go beyond the fifth slice - which does of a benefit of 2 utils. Secondly, the constraint of $20 does not disallow him to consume the fifth slice — paying $2 five times means he has to pay $10 in total which is lower than $20.

b) Total Utility $= 20 + 12 + 10 + 6 + 2 + 0 + (-2) + (-6)$
$= 50 - 8$
$= 42$ Utils.

c)

	Marginal Utility per Dollar ($)	
Units consumed	Pizza	Funnel cake.
1	20/2 = 10	- 50/4 = 12.5
2	12/2 = 6	40/4 = 10
3	10/2 = 5	32/4 = 8
4	6/2 = 3	20/4 = 5
5	2/2 = 1	12/4 = 3
6	0/2 = 0	0/4 = 0
7	-2/2 = -1	-12/4 = -3
8	-6/2 = -3.	-20/4 = -5

d) Firstly, John has a constraint of $20. He chooses the 1st unit of cake which has highest utils /$. of 12.5. His new constraint is $20 - $4 = $16. Now, the 2nd unit of funnel cake same MU/P as the 1st slice of Pizza. Thus,

according to the the optimal consumption rule, John's optimal consumption bundle is a slice of pizza & 2 funnel cakes.

e) Total Utility $= 12.5 + 10 + 10$
$= 32.5$ utils