ECON 201

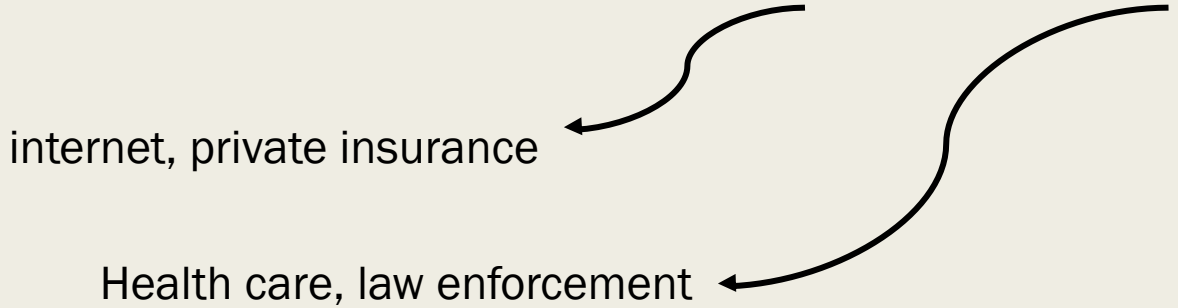
Chapter 1 – Introduction to key ideas

What is economics?

- It is the allocation of limited resources to satisfy unlimited wants
- It studies human behavior
- **Macroeconomics** – the study of the economy as a system (large)
  – determine national output, employment, prices etc
- **Microeconomics** – the study of individual behaviors in the context of scarcity
  – individual economy

Some important concepts

- **Mixed economies** – supply of goods and services by businesses and government



- Theory – logical view of how things work, by observation

- Model – formalization of theory that is used for scientific inquiry

Some assumptions

People act rationally

Self interest

Respond to initiative → money $$$

Trade: Win – Win → both parties are helped by each-other

Markets – the best way to efficiently allocate resources

Laws and stability grow the economy

Opportunity Cost

- **Opportunity cost** – what must be sacrificed when a choice is made
  – determining role in markets

- Examples:
  - 🎓 Being on vacations vs. going to school
  - 🏢 CEO of a company has a bigger OC for chilling on a Friday afternoon/night than an unemployed person
  - 💸 Investments that yield 10% of returns while you could have invested this money somewhere where the yield could be 15%

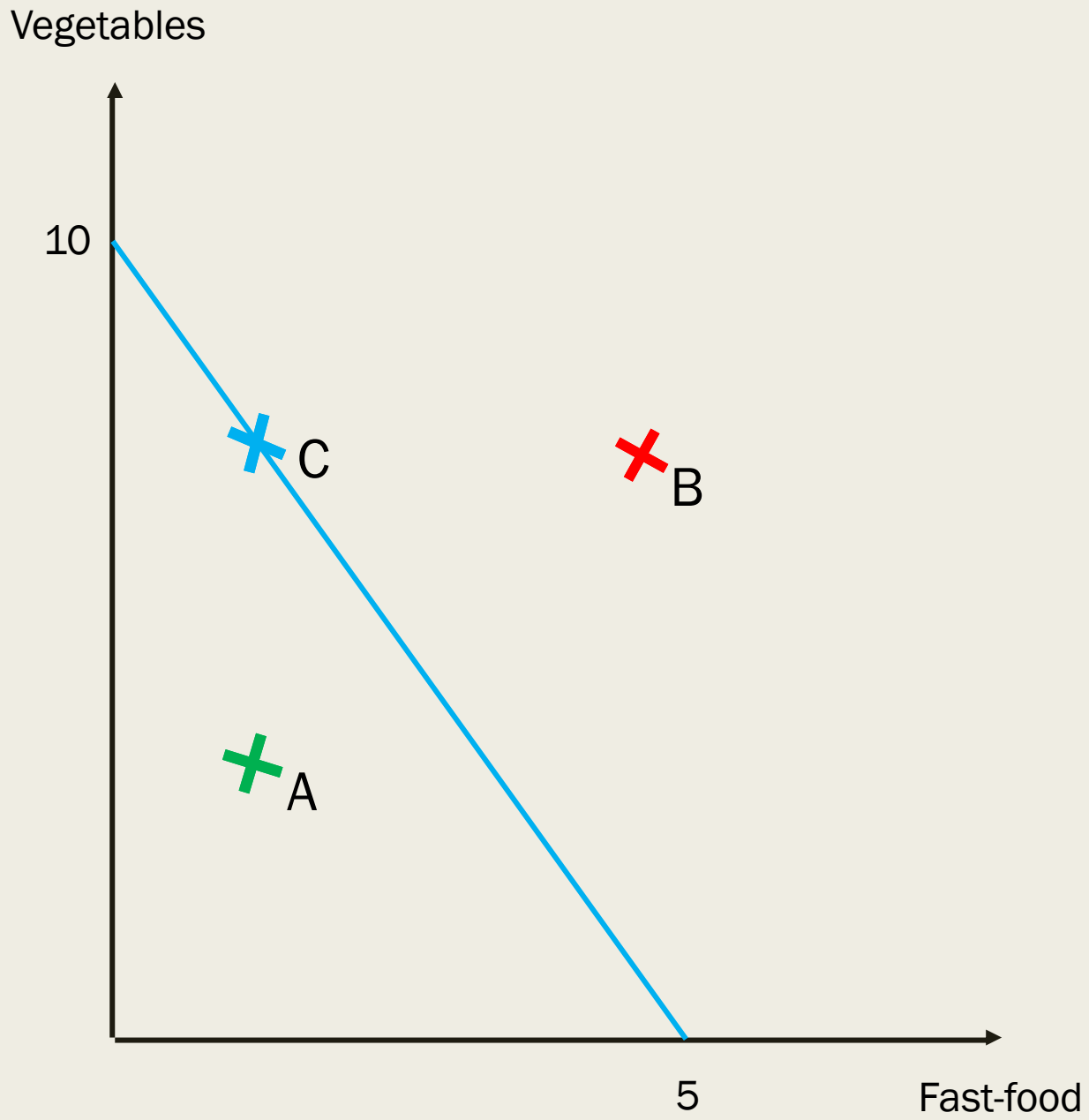
Production Possibility Frontier - PPF

PPF – the combination of goods that can be produced using all of the resources available

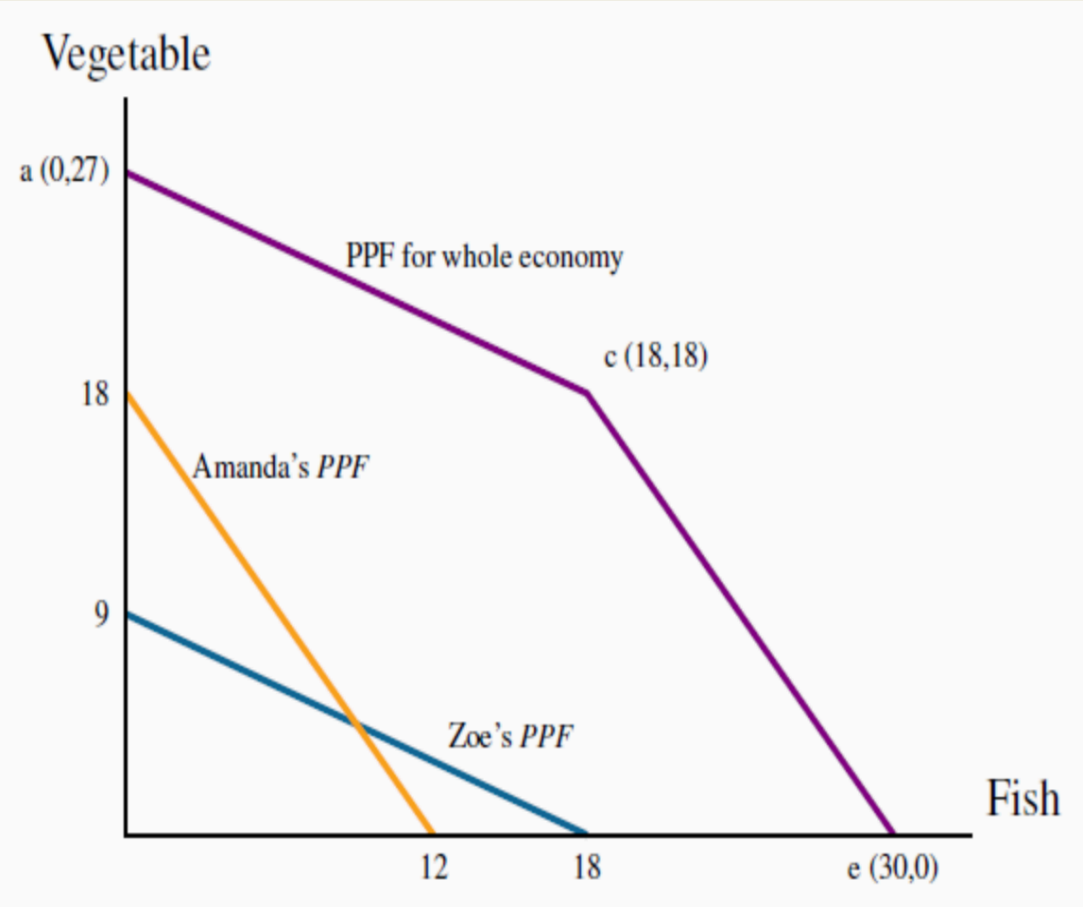
Slope PPF = OC

- A – attainable but not efficient
- B – unattainable and not efficient
- C – attainable and efficient

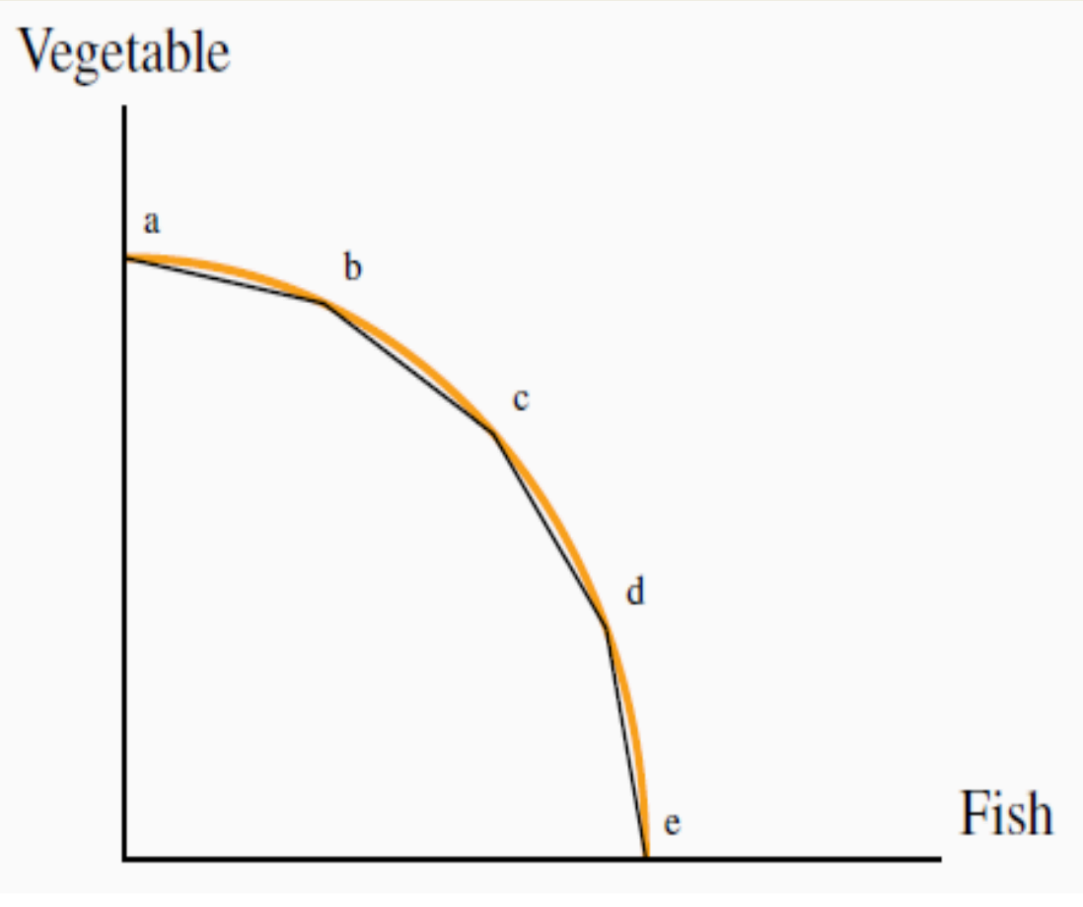
Zero Sum Game → gain of one = loss of other

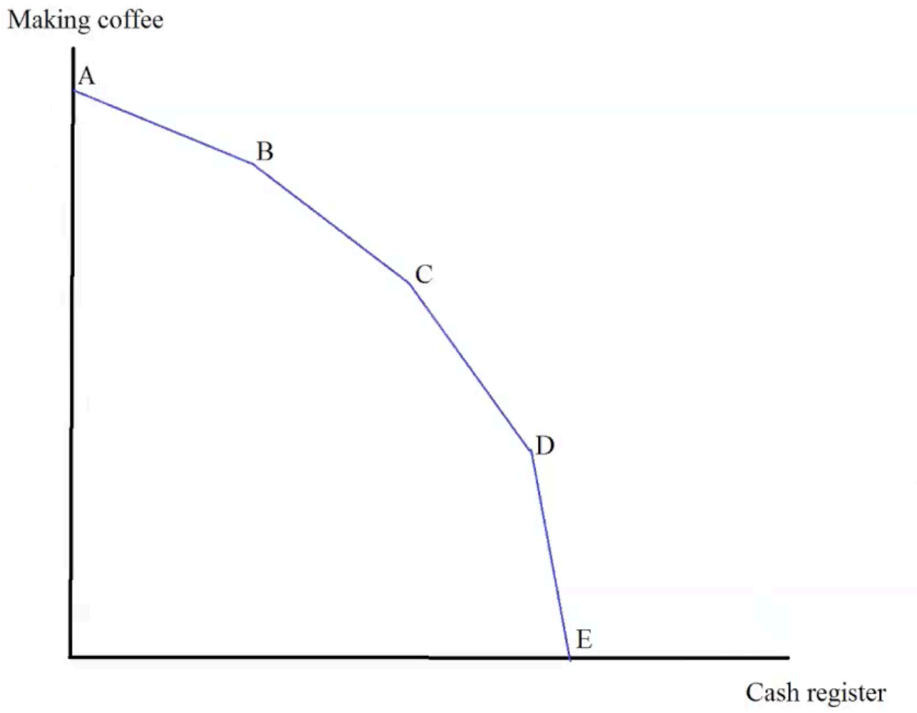


2 people



Lots of people





	Coffee	Cash register
A	90	0
B	75	25
C	55	55
D	25	70
E	0	80

FACTORS OF PRODUCTION

- **CAPITAL (K)** – Physical Capital
  – Lands
  – Technology

- **LABOUR (L)** – Labour
  – Human capital
  – Productivity

💰 Money is **NOT** a factor of production!!!

- Ann can earn $20 per hour in the workplace. Her friend Sarah can earn $30 per hour.

  a) What is the OC of one hour of leisure for Ann?

  b) What about for Sarah?

  c) build the PPF if Ann can work 12 hrs per day.

- 100 workers. Each can produce 10 cakes or 8 shirts

  a) How many cakes can be produced if all the workers are working?

  b) What about shirts?

  c) PPF

Worker A can produce 20 cars or 25 motorcycles
Worker B can produce 22 cars or 26 motorcycles
Worker C can produce 10 cars or 10 motorcycles

a) If cars are ordered who should produce them?

b) If motorcycles are ordered who should produce them?

a) Is (30, 30) in the feasible region?

ECON 201

Chapter 2 – Theories, data and beliefs

Some definitions / concepts

- Variables – measures that can take on different values at a point of time
- Data – recorded values of variables

- From Chapter 1
  - *Economic recession – when output falls below the economy's capacity output*
  - *Boom – a period of high growth that raises output above normal capacity output*

WAYS OF PRESENTING DATA

-Not mutually exclusive ie. a grey area can exist

Time-series

- One variable
- Different points in time

Cross-sectional data

- Multiple variables
- One point at a time

Repeated Cross-sectional

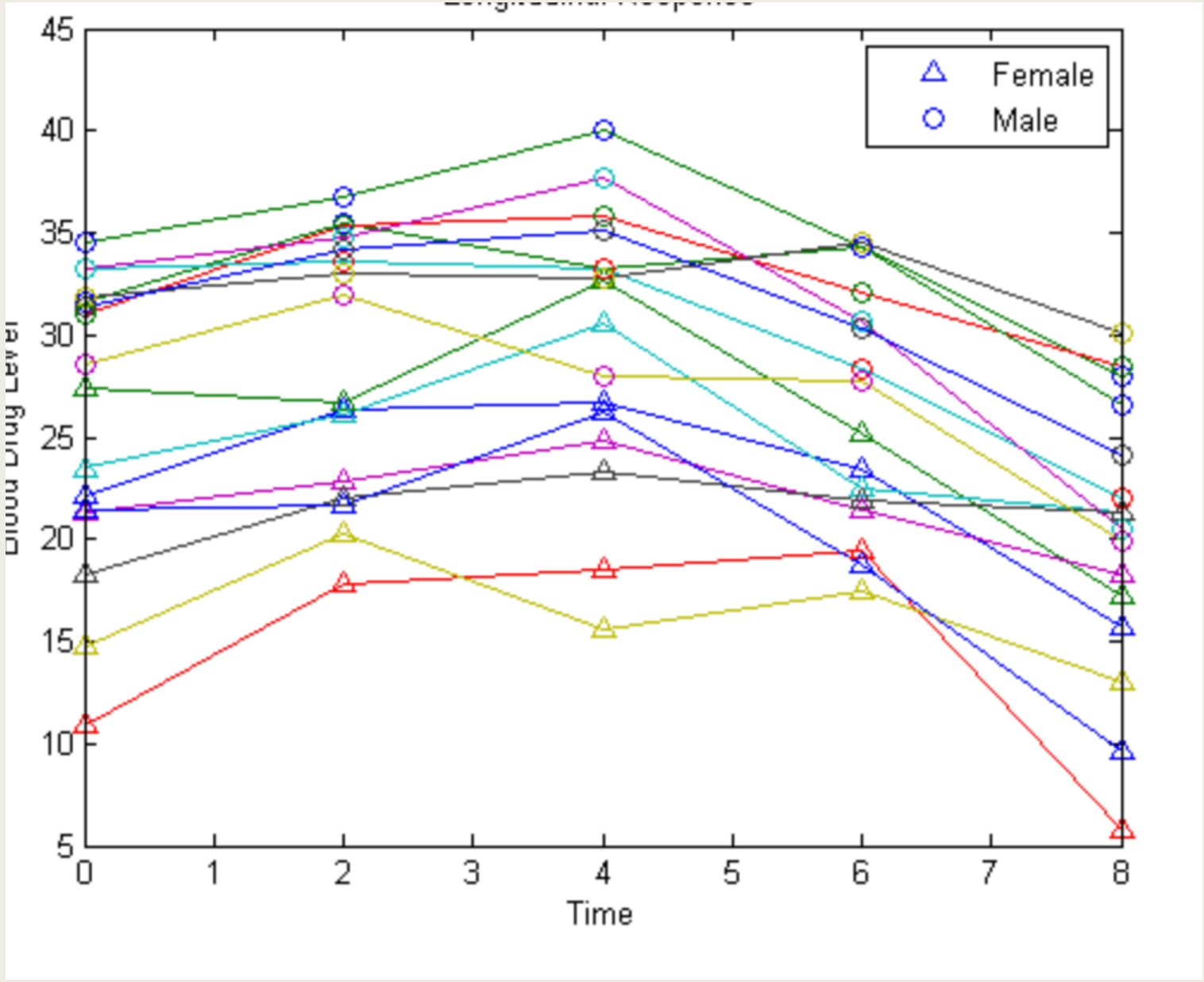
- Multiple variables
- Different points in time
- Regular or irregular intervals

Longitudinal data

- Same sample followed through time

Another way

Type of data	# of people	# of variables	Amount of time	Example
TIME – SERIES DATA	1	1	∞	My income through 2004-2008
CROSS – SECTIONAL DATA	∞	∞	1	Our GPAs in 2004
LONGITUDONAL DATA (PANEL DATA)	∞	∞	∞	Our GPAs from 2004 to 2008



- Time series
- Cross-sectional data
- Longitudinal data

Consumer Prices

- Consumer Price Index CPI – the average price level for consumer goods and services
- Real price – the actual price adjusted by the general consumer price level in the economy
- Inflation rate – annual percentage increase in the level of consumer prices
- Deflation rate – annual percentage decrease in the level of consumer price

$$Nominal\ Price\ index = \frac{Price\ present\ year}{Price\ base\ year} * 100$$

$$CPI = \frac{Cost\ of\ basket\ present\ year}{Cost\ of\ basket\ base\ year} * 100$$

$$\text{Real Pr}ice\ Index = \frac{Nom.\ Price\ present\ year}{CPI\ present\ year} * 100$$

- The following table represents a consumer price index for apples over four years. Calculate

  (i) the nominal price index and

  (ii) the real price index for apples in 2004.

Year	CPI	Price
2001	94	14
2002	100	15
2003	105	16
2004	115	17

Ethics, efficiency and beliefs

- **Positive economics** – studies objective or scientific explanations, based on facts
- **Normative economics** – recommendations, saying what you think, not based on facts

- Example:
  - *It is cold outside*
    - Temperature is -10 degrees → Positive
  - *You should wear a jacket before going out.*
    - Recommendation for your friend not to get sick → Normative

- All of the following statements are normative except:

a) Global warming is the most important problem of the century
b) The retirement age should be raised to 70 to combat the effects of our ageing population
c) Donald Trump should not build a wall on the Mexico border
d) An increase in minimum wage increases unemployment among teenagers
e) At present unemployment is a more serious problem than inflation

Efficiency vs. Equity

- Efficiency - Is the distribution of goods fair?

  - Being concerned with finding the optimal point of production/consumption

- Equity - How are and how should the goods be distributed amongst people?

  - Distribution of well being (most of the time equally)

!!! ATTENTION !!!

EQUITY comes at a trade-off of EFFICIENCY

Equity comes at a cost of **Efficiency**

The table below shows quantities purchased and the prices of the only two goods citizens of Bloominonionland buy over three years.

Year	Quantity of bubble tea	Price of bubble tea	Quantity of kangaroo steaks	Price of kangaroo steaks
2016	10	$4	5	$8
2017	10	$6	5	$12
2018	10	$5	5	$10

a) What is the consumer price index for 2017 using 2016 as a base year?

b) The price of hamster food and many other consumer goods increased in Hamsterville. As a result, the CPI increased from 808080 to 100100100.
What was the inflation rate in Hamsterville?

c) Which of the following best explains why the consumer price index (CPI) may not accurately measure changes in the cost of living?

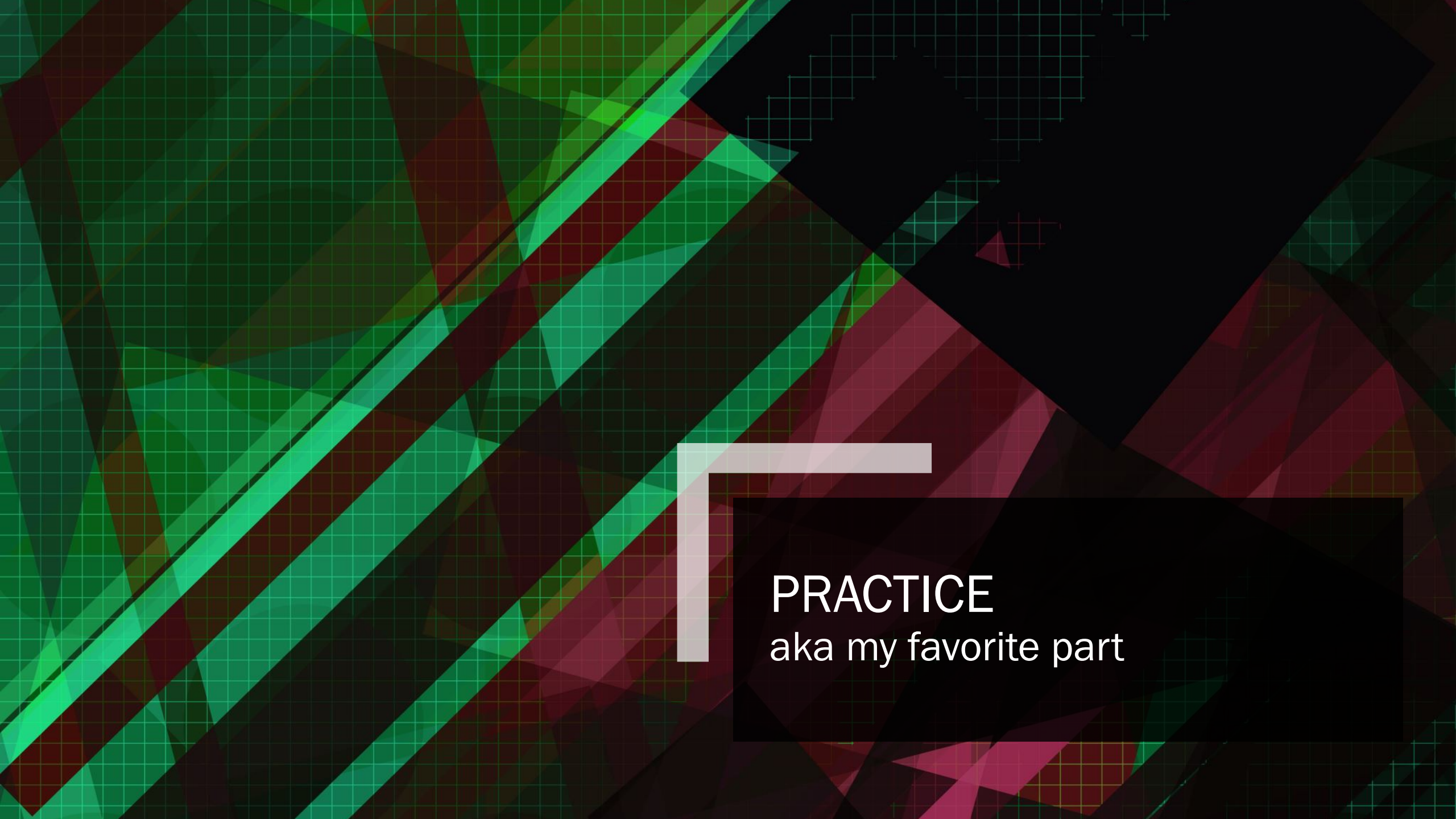
A) When prices of some goods go up, consumers buy less of those and more of goods that are cheaper

B) It only includes goods purchased every day

C) It does not account for changes in consumers' incomes

D) When real GDP increases, the CPI doesn't change

E) It doesn't include all prices, such as input costs to firms


PRACTICE
aka my favorite part

Question 1

- When a choice is made, we call the value of the best alternative choice the:

a) *Implicit choice*
b) *Accounting cost*
c) *Opportunity cost*
d) *Apparent cost*
e) *None of the above*

Question 2

- Suppose you give up a job that pays $30,000 a year in order to pursue your university education. Every year you pay $4000 for tuition and books and $16,000 for food and rent. What is your opportunity cost of spending one year in university?

a) $46,000

b) $50,000

c) $34,000

d) $30,000

Question 3

- A production possibilities frontier can shift outward if:

a) *Government increases the amount of money in the economy*
b) *There is a technological improvement*
c) *Resources are shifted from the production of one good to the production of the other good*
d) *The economy abandons in efficient production methods in favor of efficient production methods*

Question 4

- If the CPI is 180 for 2015 and the base year is 1982 this means that:

a) *Prices went up by 80% from 1982 to 2015*
b) *Prices went up by 180% from 1980 to 2015*
c) *Prices went up by 280% from 1980 to 2015*
d) *Prices went down by 80% from 1982 to 2015*

$$Percentage\ change = \frac{Final\ - Initial}{Initial} * 100$$

Question 5

- All of the following statements are false except:

a) *In positive economics we are detach scientists and personal values do not enter our description of economic events*
b) *The unemployment rate for September this year was 7.3% is a normative statement*
c) *The government should provide a minimum income to every citizen is a positive statement*
d) *Normative statements are based in facts and not opinions*

Question 6

- A basket of goods in 2015 cost $354 while the value of the same basket in 2019 was $1260 the value of this price index in 2019 based on 2015 = 100 was:

a) 242
b) 356
c) 455
d) 280

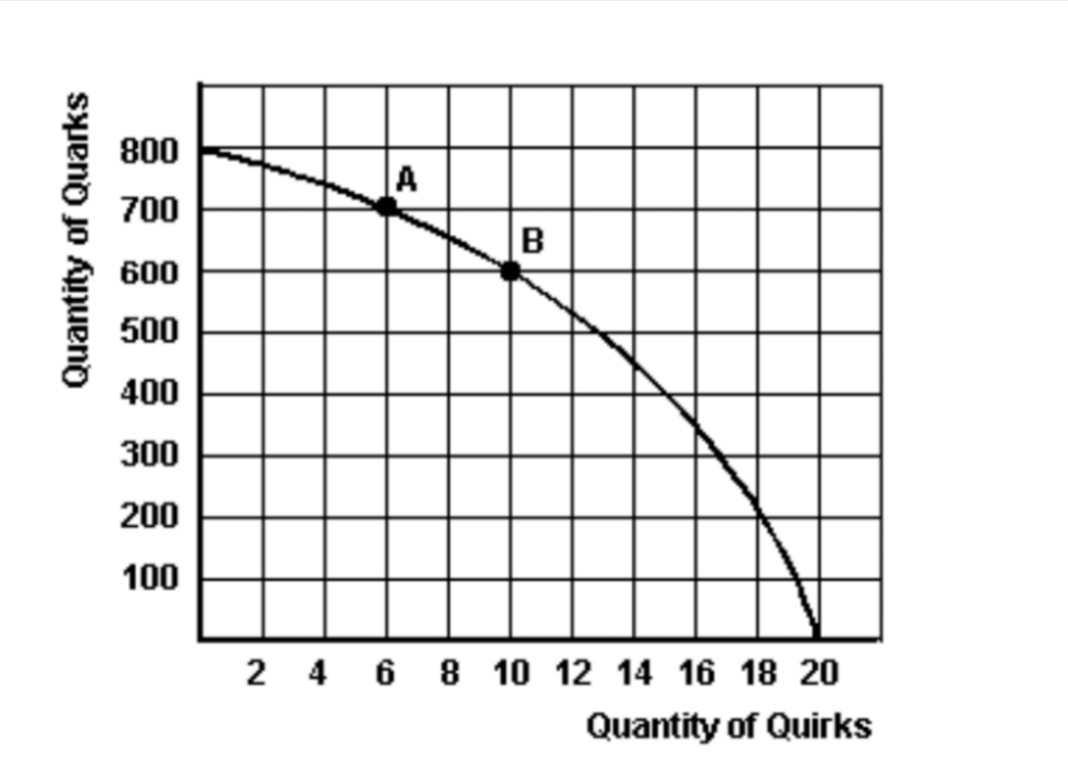
$$CPI = \frac{Cost\ of\ basket\ present\ year}{Cost\ of\ basket\ base\ year} * 100$$

Question 7

- Laura is thinking about going to the cinema. A ticket to watch a movie costs $10 and she will have to cancel her tutoring job that pays $45. The cost of seeing the movie is therefore:

a) *$45*
b) *$10*
c) *$55*
d) *$35*

Question 8



- Referring to the graph, if production is currently that indicated by point A, what is the approximate cost for producing one more quirk?

  a) *100 quarks*
  b) *50 quarks*
  c) *25 quarks*
  d) *1 more quark*

Question 9

- The difference between a straight-line production possibilities frontier and one that is concave is that:

a) *The concave production possibilities frontier exhibits constant opportunity cost while the straight-line frontier does not*
b) *The straight-line frontier reflects constant opportunity cost, but the concave frontier does not*
c) *The concave frontier reflects a problem of scarcity, but the straight-line frontier does not*
d) *Neither the straight line or the concave frontier reflects output limits*

Question 10

- When economies computer real value of an economic variable dominated in dollars they do so by:

a) *Dividing a nominal value by 100*
b) *Multiplying the nominal value by the price level*
c) *Dividing a nominal value by the price index*
d) *Subtracting the price level from the nominal value and multiplying by 100*

Question 11

- If in a graph a point falls below (inside) the PPF curve that was most likely caused by:

a) *Unemployment*
b) *A decrease in societies preferences for X good*
c) *Fewer resources available for production*
d) *All of the above are correct*

Question 12

- Which of the following is correct about the concept of scarcity?

a) *Robinson Crusoe lives in an island all by himself and he catches all the food he eats and build a shelter he lives in. Because he does not need money the concept does not apply to him*

b) *Because we have limited time, energy, resources and we cannot do everything at the same time scarcity applies to everyone*

c) *It does not apply to rich countries such as the US and Germany, but applies to poor countries such as Molly and Mozambique*

d) *Government carries more taxes from its people to pay for any of its additional expenses therefore the concept does not apply to the government*

Question 13

- Mary's thinking about going to the hockey game tonight a ticket cost $120 and she will have to cancel her job that pays $50. She's going to have dinner that costs her $30 whether she goes to the game or to her job. The cost of seeing the hockey game is therefore:

a) *120*
b) *170*
c) *200*
d) *90*
e) *70*

Question 14

- Which of the following statement(s) is (are) positive:

a) *If the income increases, sales of luxury goods will fall*
b) *When minimum wages are raised, unemployment rises*
c) *All of the above*
d) *None of the above*

Question 15

- All of the following conditions will cause an outward shift of the production possibilities frontier except:

a) *An improvement in the overall technology of production*
b) *Existing factors of production become more positive*
c) *The quantity of the factors of production increases*
d) *Previously unemployed factors of production are put back to work*

Question 17

- Increased equity generally involves:

a) *Increase inefficiency*
b) *A better use of resources*
c) *Increased initiatives to work*
d) *Higher standards of living*

Question 18

- Referring to the table below which denotes the cost of producing why in generators for you wanted in Italy and Germany we can conclude
  a) *Germany has a comparative advantage in peaches and Italy has a comparative advantage in grapes*
  b) *Germany has a comparative advantage in both goods*
  c) *Italy has a comparative advantage in peaches and Germany has a comparative advantage in grapes*
  d) *None of the above statements are true*

	Germany ($)	Italy ($)
Peaches	20	30
Grapes	20,000	40,000

Question 19

- If we have an economic growth how would it be illustrated in a production possibilities frontier graph:

a) *An outward shift in the PPF*
b) *By the steepness or flatness of the PPF*
c) *By having a PPF that is straight line or linear*
d) *A movement along the PPF*

Question 20

- The representative basket of goods used to calculate the CPI in 2015 cost $735 while the value of the same basket in 2019 costs $950. If the base year is 2015, what is the inflation rate between 2015 and 2019?

a) *129.25%*
b) *29.25%*
c) *77.37%*
d) *22.63%*

$$Percentage\ change = \frac{Final\ - Initial}{Initial} * 100$$

ECON 201

Chapter 3

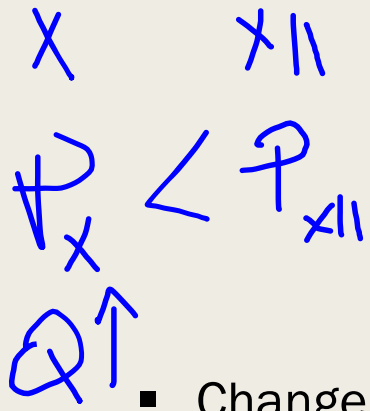
The classical marketplace – demand and supply

What is a marketplace?

- Structure that facilitates exchange between sellers and buyers
- Includes every type of market

- Buyers → Demand (D)
- Sellers → Supply (S)

Types of goods



- Change in income
  - Inferior
  - Normal
    - Necessity
    - Luxury goods
- Change in P of same good
  - Giffen goods
  - Ordinary goods
- Change in P of another good
  - Substitute goods
  - Complementary goods

Demand

- Demand is a quantity of a good or service that buyers wish to purchase at each possible price with all other influences on demand remaining unchanged
- Negative relationship between P and Q
- Downward slopping (most common)

Demand Function → Q = b - aP

Inverse Demand → P = b - aQ

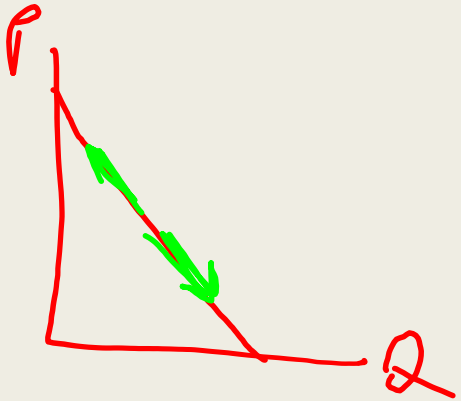
Difference between change in quantity demanded and change in demand

↓

Only price changes the quantity demanded

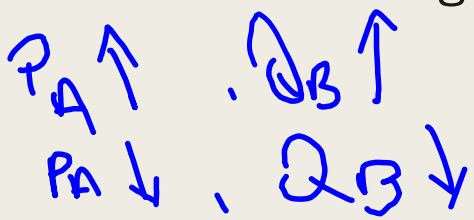
↓

Movement along the line

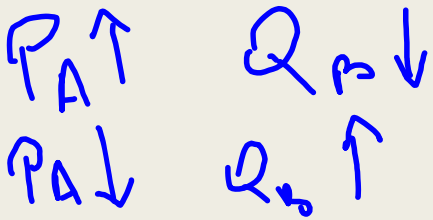


What effects the demand?

- Price of a substitute good



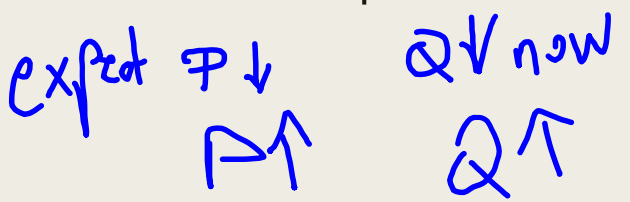
- Price of a complementary good



- Income - normal / inferior

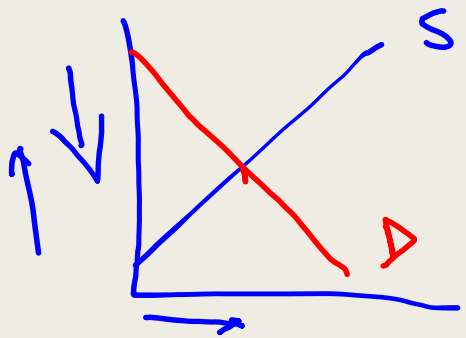
- Preference

- Price expectation



- Number of consumers

Supply



- Supply is a quantity of a good or service that sellers are willing to sell at each possible price with all other influences on supply remaining unchanged
- Positive relationship between P and Q
- Upward sloping

Function of supply: Q(P) → Q = 15 + 5P

Inverse supply function: P(Q) → P = 15 + 5Q

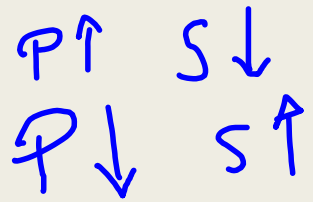
$5Q = P - 15$

$Q = \frac{P - 15}{5}$

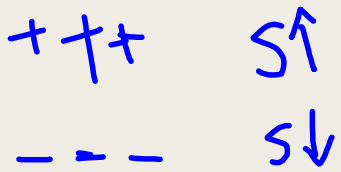
$= \frac{P}{5} - 3$

What effects the supply

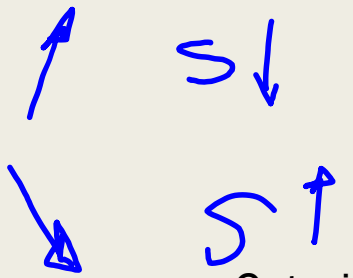
- Price of inputs



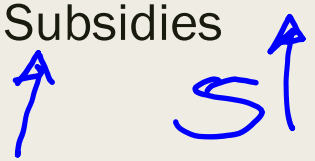
- Technology and production



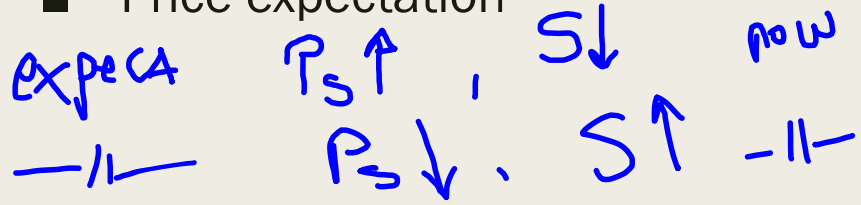
- Tax



- Subsidies



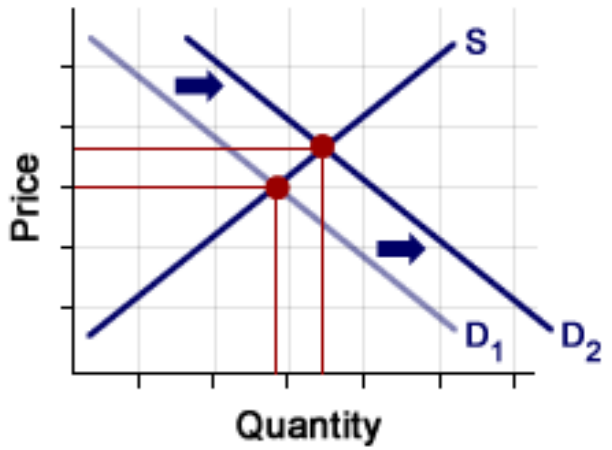
- Price expectation



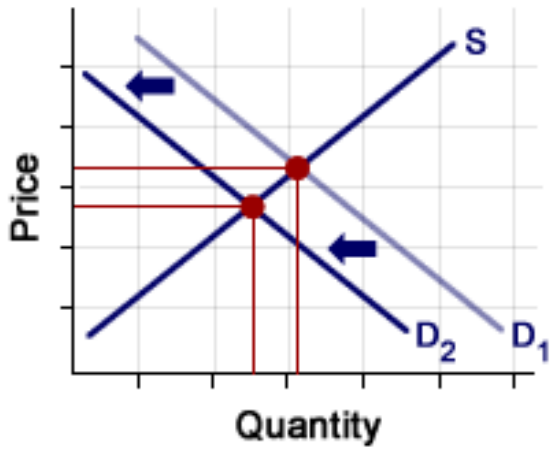
- Number of producers

Ceteris Paribus = only 1 thing changes and the others remain unchanged

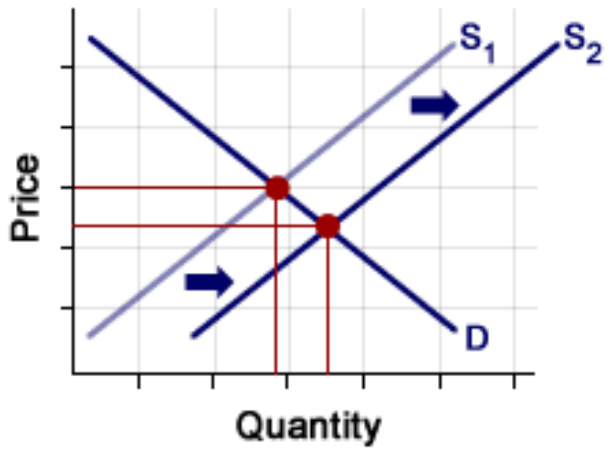
Graph 1



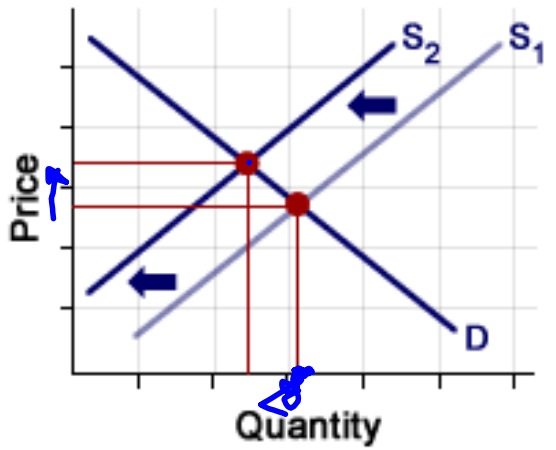
Graph 2



Graph 3



Graph 4



$$P = 130 - 0.4Q$$

y-intercept

slope

$0.4Q = 130 - P$

$Q = \frac{130 - P}{0.4}$

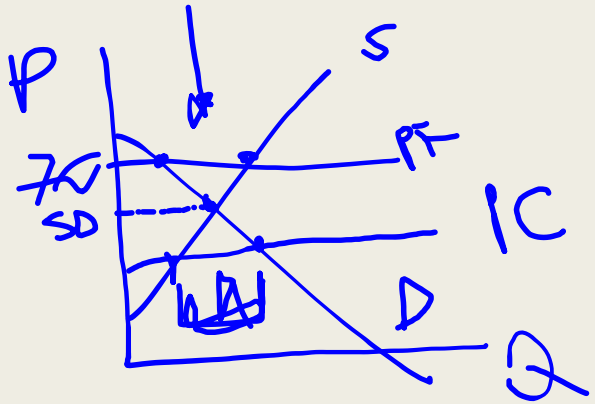
- Is this a supply or demand curve?
- Is it a regular or inverse function?
- If there is a new price of $50, what would be the quantity demanded?

$50 = 130 - 0.4Q$

$\frac{130 - 50}{0.4}$

$Q = 200$

$\frac{\Delta y}{\Delta x}$ slope



Equilibriums

- What is it?
  - *Equilibrium point is where Buyers and Sellers meet halfway on a Price and Quantity*
- How to find it?
  - *Equaling both curves to each other*
  - *Both should be regular or inverse functions*
- Equilibrium Price = P* or P_{eq}
- Equilibrium Quantity = Q* or Q_{eq}
- Example: $Q_S = 4 + \frac{1}{2}P$ and $Q_D = 10 - \frac{3}{2}P$

$Q_S = Q_D$

$4 + \frac{1}{2}P = 10 - \frac{3}{2}P$

$\frac{4P}{2} = 6$

$P^* = 3$

$Q^* = 10 - \frac{3}{2} = \frac{11}{2}$

Go back to the graphs slide 52

Market Failure

- When does it happen?
  - *When* $Q_S \neq Q_D$

- Shortage = Excess demand = Shortage of supply = P<P*
- Surplus = Excess supply = Shortage of demand = P>P*

Price Control

- Price floor – higher than P*
  - above P* (graphically)
  - government sets a min price
  - protects the supplier
  - surplus

- Price ceiling – lower than P*
  - under P* (graphically)
  - government says that suppliers can't charge more than a specific price
  - protects the consumer
  - shortage

$Q^* = \min \{Q_S, Q_D\}$

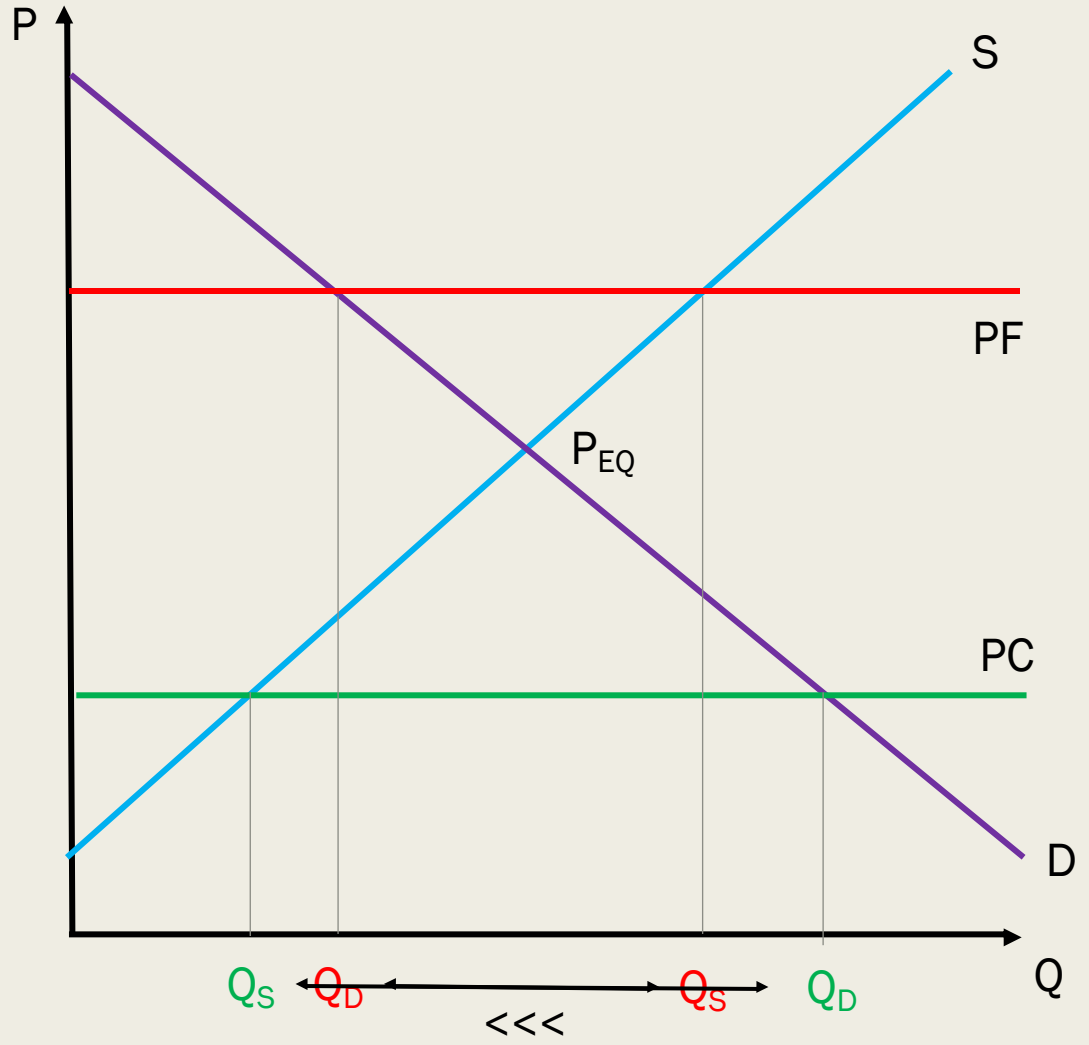
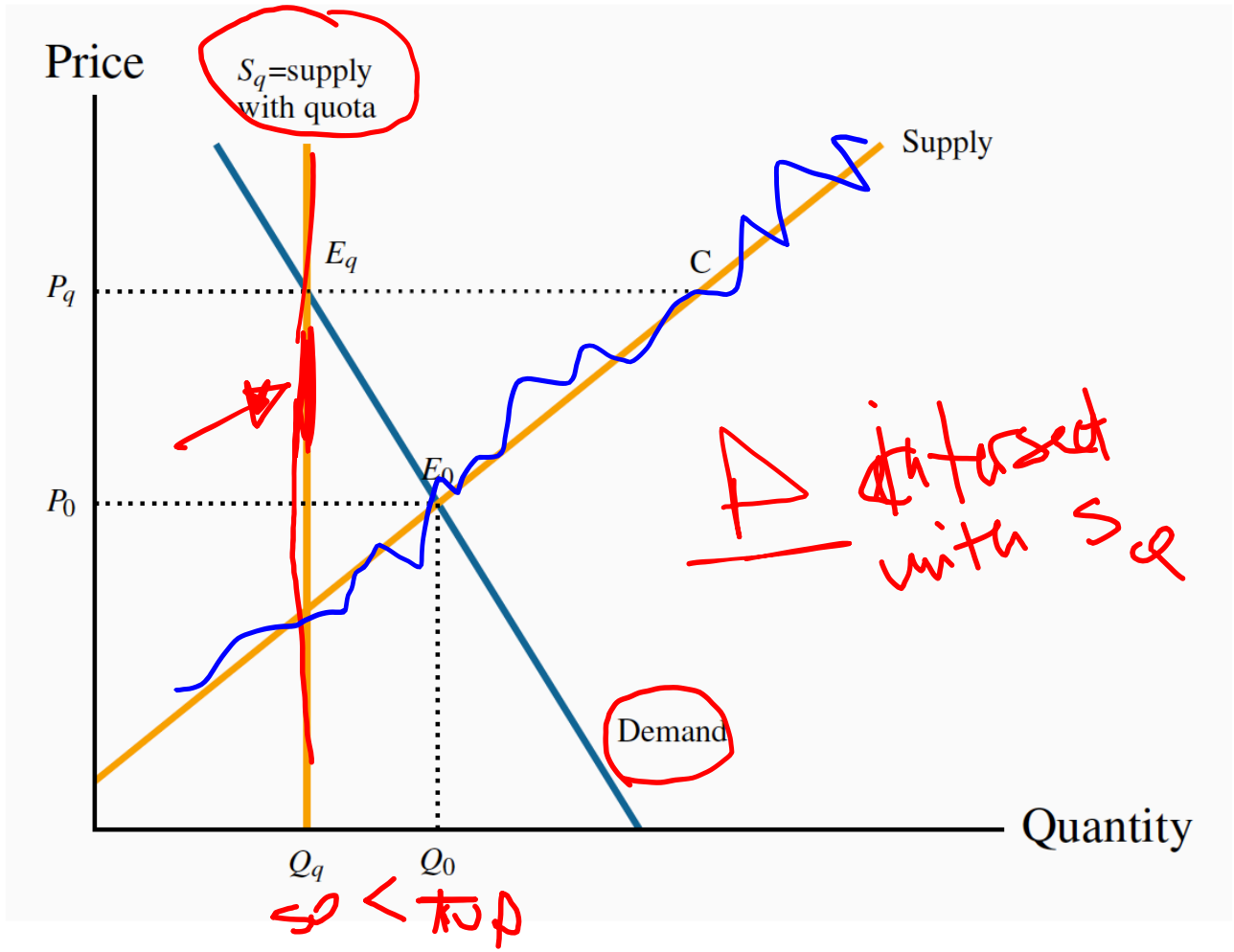
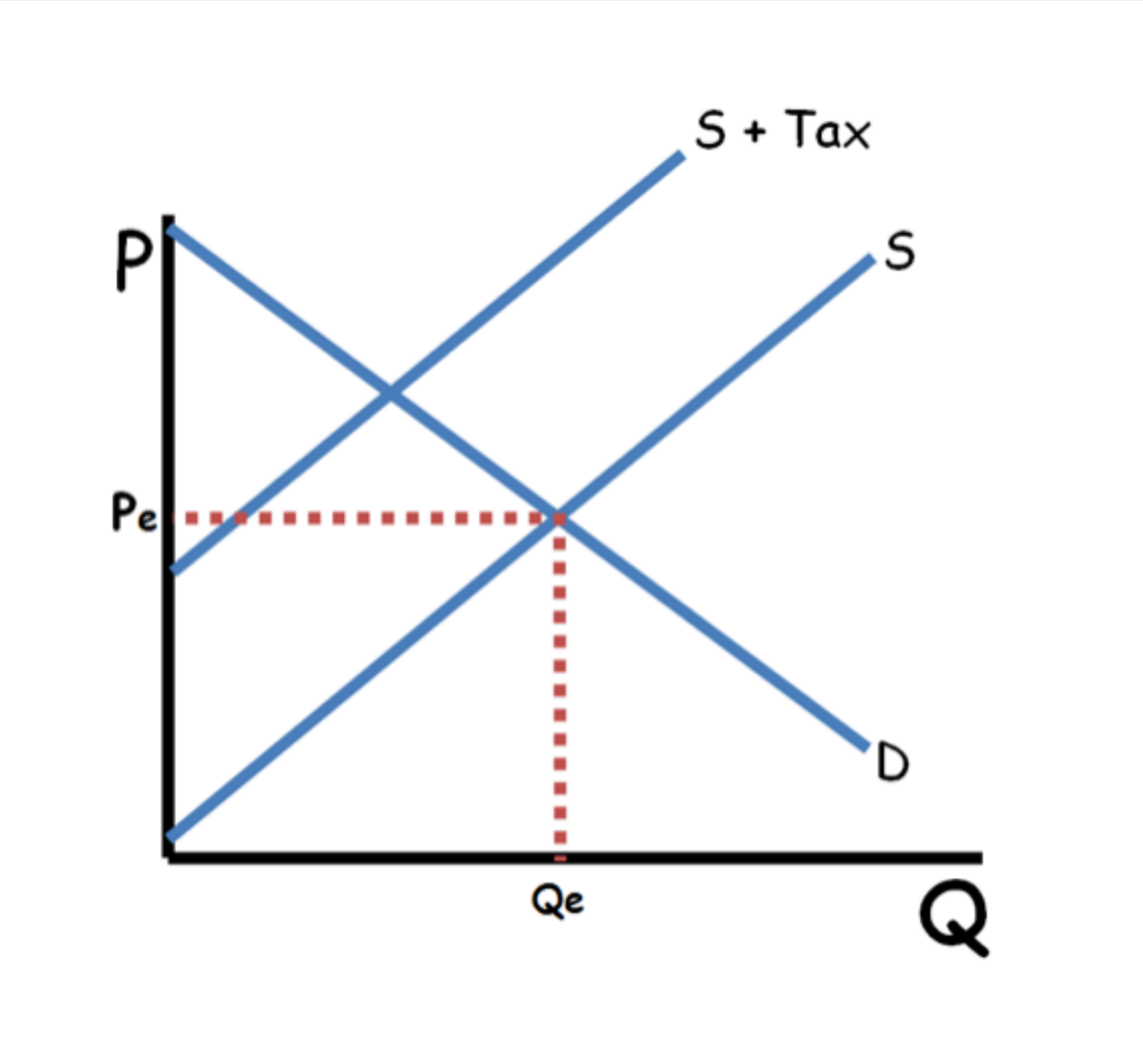


Figure 3.8: The effect of a quota



Quota

- Government restrains quantity (has to do with supply)
- Controls price by fixing a limit on the quantity
- To find new Q* just plug the Quota into the demand function and find the new P*



Tax

- Shifts either supply either demand curve
- Both parties share the burden regardless to whom it is imposed

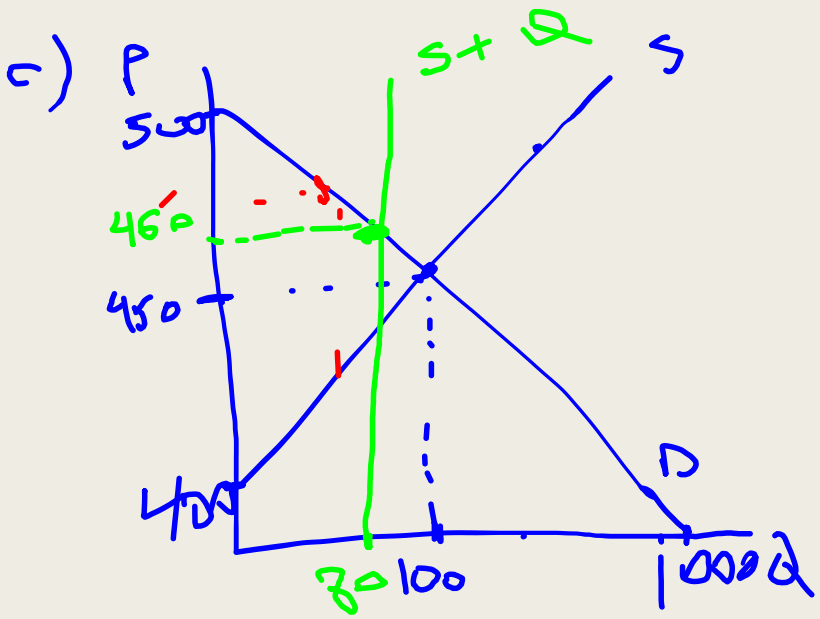
The demand for an android cellphone is given by $P = 500 - Q/2$ and the supply by $Q = 2P - 800$.

a) Find the equilibrium P and Q

b) Assume that the government wants to help the producers by setting a price floor for this commodity. Can it set a price at $480 per unit? Why or why not?

c) Assume that the government decides to impose a unit tax of $50 to the suppliers of androids. What is the equilibrium Q?

d) What would be the equilibrium P with a Quota at 80?



$$P_S = 400 + \frac{Q}{2}$$

$Q_S = Q_D$

$Sn \Rightarrow Q = 80$

$P_D = 500 - \frac{Q}{2}$

$= 500 - \frac{80}{2}$

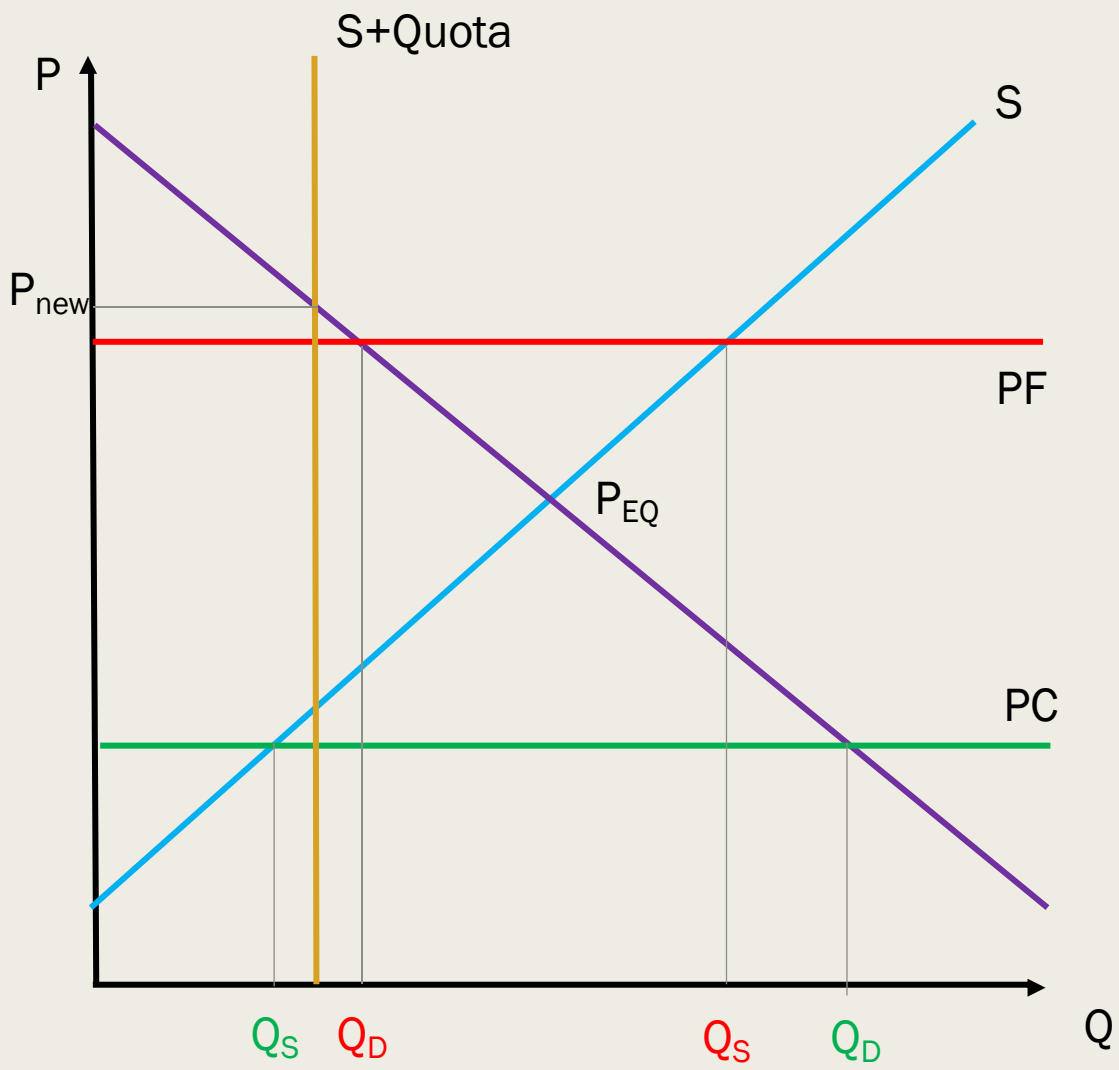
$= 460$

ECON 201 - CHAPTER 3

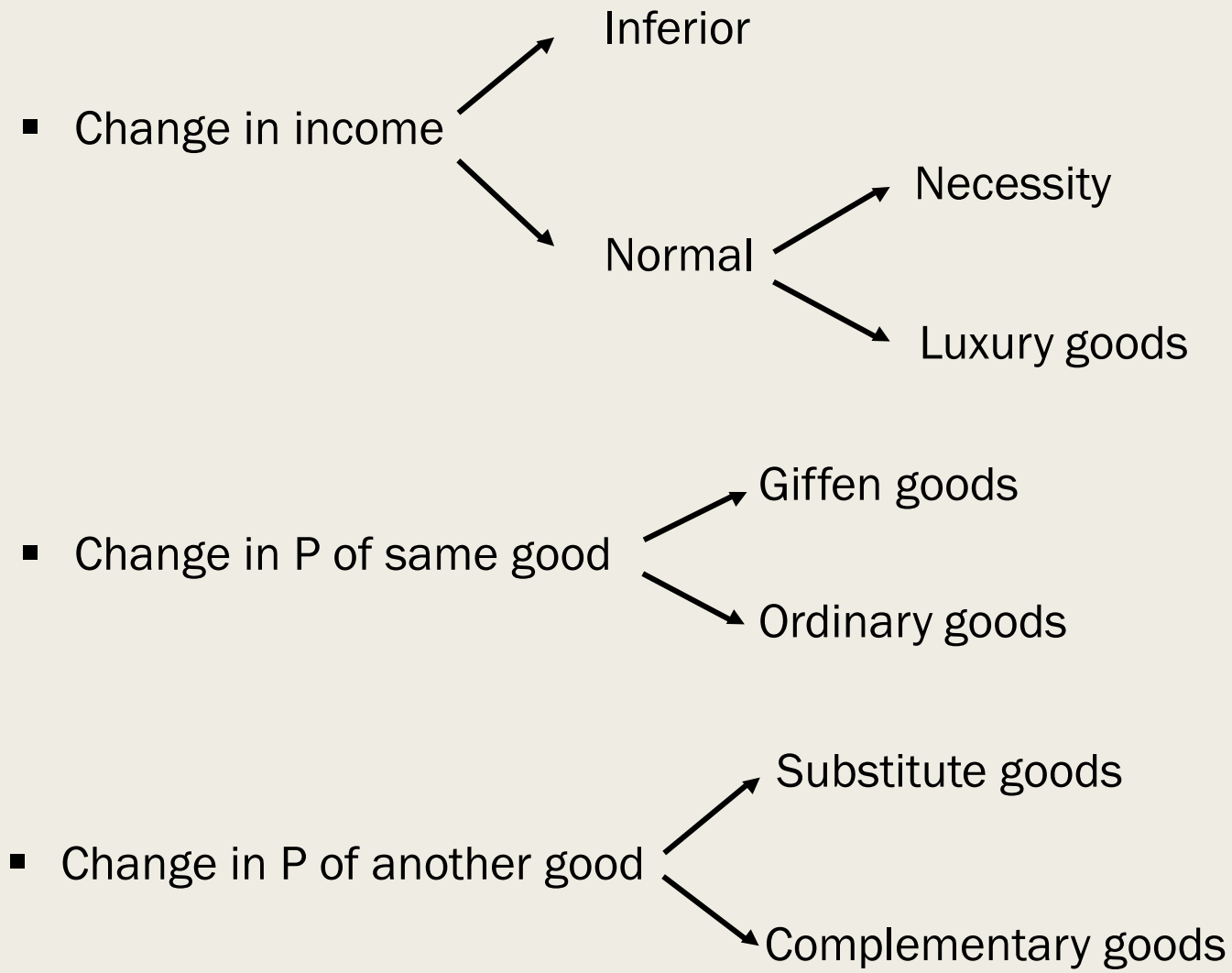
Revision and Exercises

- **Demand → P = a – b* Q** **slope = b<0**
  - *What shifts D curve*
    1. Price of related goods
    2. Income
    3. Preferences
    4. Expectations about the future
    5. Nr of consumers

- **Supply → P = a + b*Q** **slope = b>0**
  - *What shifts S curve*
    1. Price of resources
    2. Technology
    3. Nr of producers
    4. Expectations about the future
    5. Taxes and subsidies



Type of goods



Question 1

- An effective price floor is associated with most closely with:
  a) *A shortage*
  b) *A surplus*
  c) *Excess supply*
  d) *Excess demand*

Question 2

- A right would shift in the supply curve can be caused by:
  a) *An increase in demand by the consumers of this product*
  b) *An increase in business taxes the government charges the firms*
  c) *A decrease in prices of inputs used by the firms*
  d) *A decrease in the consumers' income*

Question 3

- Assuming that you are consuming good X and Y and the prices for these two gods remain unchanged, but your income increases by 15%. What happens to your conception of good X?
  a) *Increases or decreases depending on whether it is normal or inferior*
  b) *Stays the same*
  c) *Decreases*
  d) *Increases*

Question 4

- What is something that the government uses to help companies or factories?
  a) *Taxes*
  b) *Subsidies*
  c) *Price floor*
  d) *Price ceiling*

Question 5

- Good X and Y are complementary goods in consumption. The cost of a resource used in the production of X increases. As a result:
  a) *The equilibrium price of Y will rise and the equilibrium price of X will fall*
  b) *The equilibrium price of Y will fall and the equilibrium price of X will rise*
  c) *The equilibrium price of both will fall*
  d) *The equilibrium price of both will rise*

Question 6

- The market for smartphones is given by the following D and S equations:

  $P_D = 250 - 5Q$. $P_S = 110 + 2Q$

a) What is the equilibrium price and quantity?

b) The government imposes a tax of $30 per unit. What would be the new equilibrium?

Question 7

- If the supply equation changes from P = 5 + 2Q to P = 3 + 2Q which of the following statements is correct?
  a) *The supply of this product has decreased which is a shift to the right*
  b) *The supply of this product has decreased which is a shift to the left*
  c) *The supply of this product has increased which is a shift to the right*
  d) *The supply of this product has increased which is a shift to the left*

Question 8

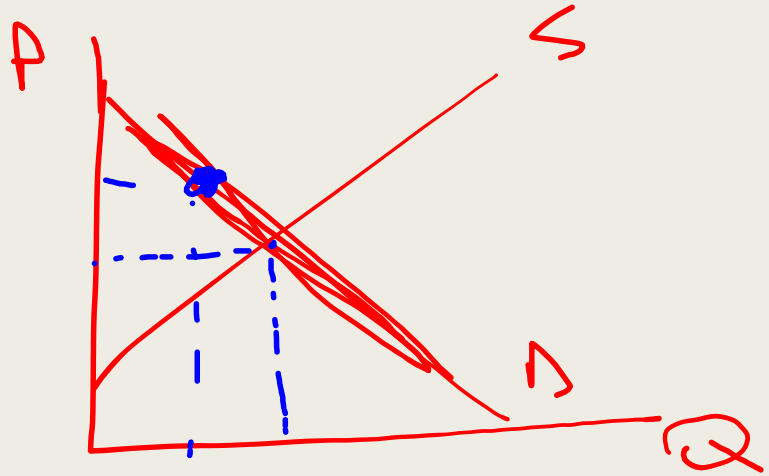
- Suppose the demand equation is given by P = 12 – 2Q and the supply equation is given by P = 2 + 3Q. If the quota quantity is Q = 1 what is the price that this unit will sell for?
  a) *$8*
  b) *$10*
  c) *$5*
  d) *Cannot be determined*

Question 9

- If the demand equation changes from P = 24 – 6Q to P = 24 – 8Q which of the following statement is correct?
  a) *The demand for this product has decreased, which is a pivot to the left*
  b) *The demand for this product has increased, which is a pivot to the right*
  c) *The demand for this product has decreased, which is a pivot to the right*
  d) *The demand for this product has increased, which is a pivot to the left*

Question 10

- If Cola and Pepsi are substitutes, a rise in the price of Cola is represented by ____ the demand curve for Cola and a _____ the demand curve for Pepsi
  - a) *Movement along; rightward shift in*
  - b) *Movement along; leftward shift in*
  - c) *Rightward shift in; movement along*
  - d) *Leftward shift in; movement along*



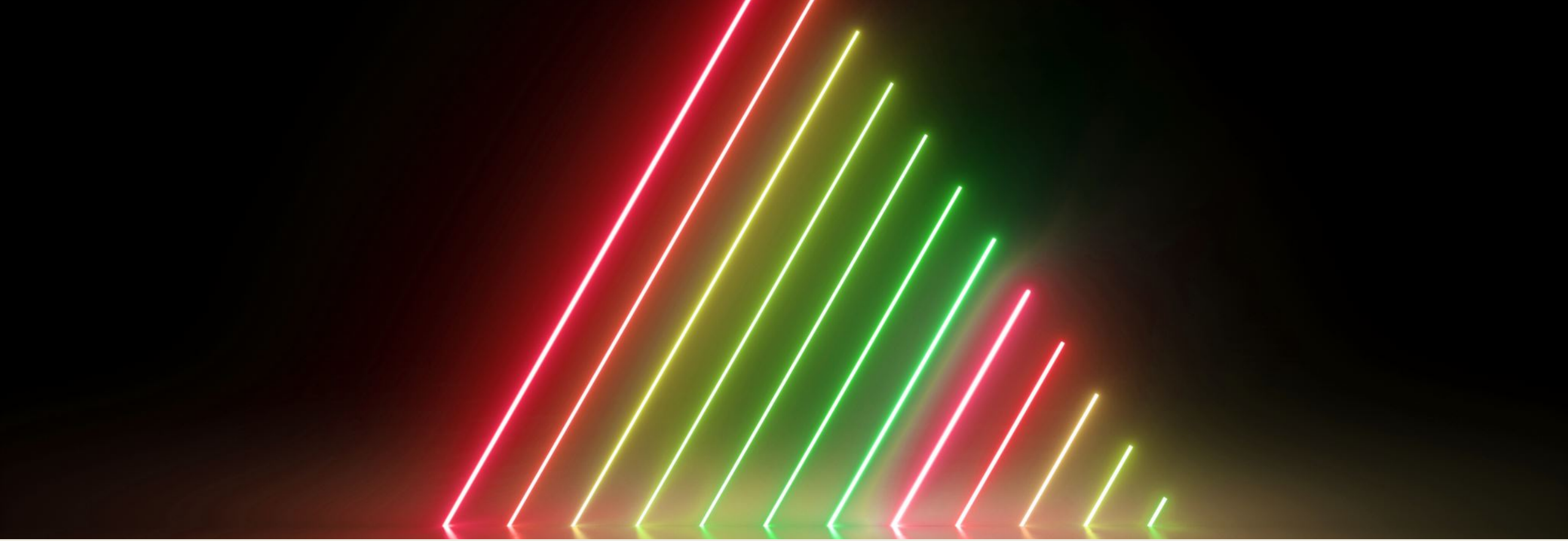
Question 11

PD = 20 – $\frac{2}{5}$Q PS = $\frac{2}{5}$Q

a) Find the equilibrium Price and Quantity

b) Assume there is a price floor imposed of $15. What is the quantity demanded at this price? What about supplied? Excess or supply? What is the magnitude?

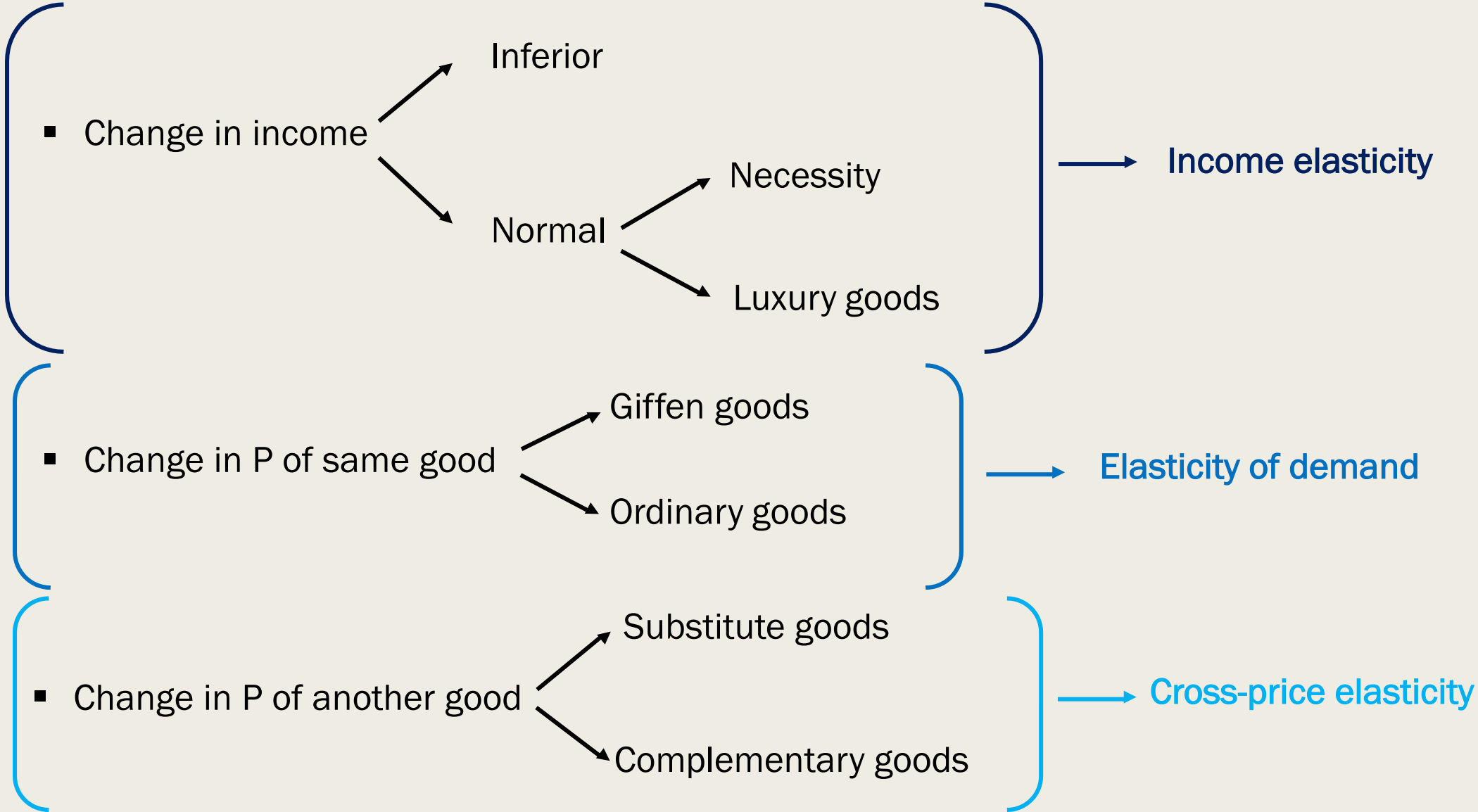
c) Assume there is a price ceiling at P = $5. What is the quantity demanded at this price? What about supplied? Excess or supply? What is the magnitude?



ECON 201

CHAPTER 4 – Elasticities

Types of goods

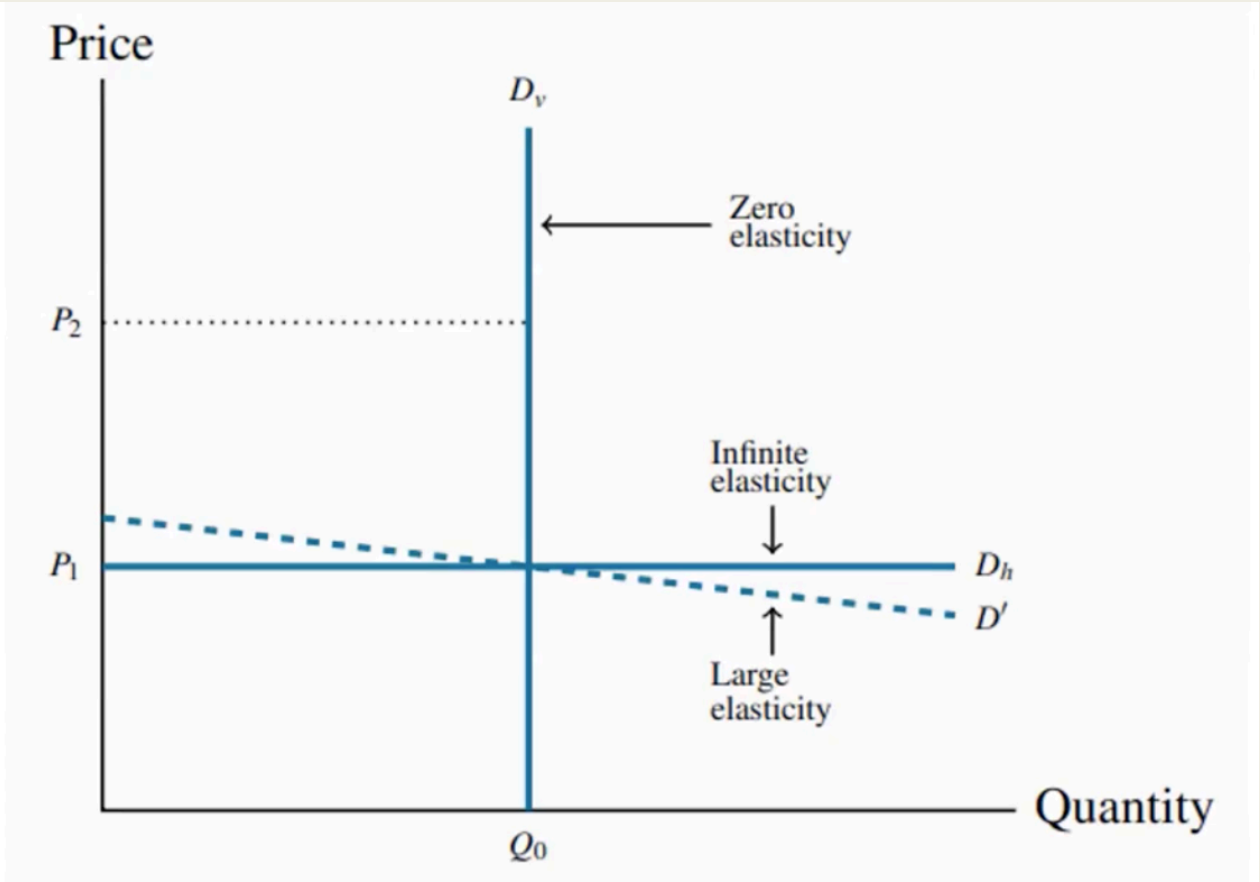


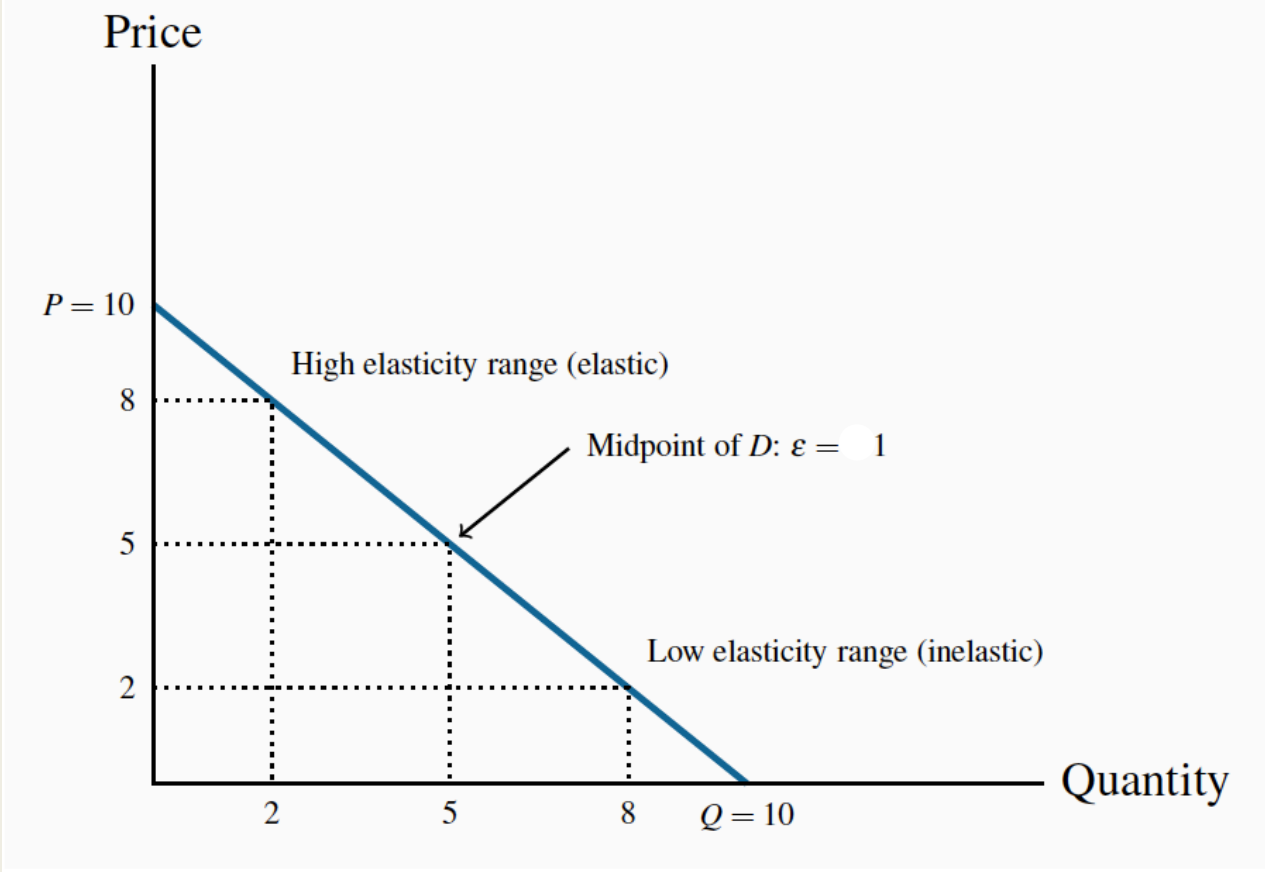
Price elasticity of demand

- Responsiveness of consumers to a change in price of a good or service
- Formula → $\varepsilon = \frac{\Delta\%\mathrm{Q}}{\Delta\%\mathrm{P}}$
  - *Will always be negative that's why we take the absolute value of it ie. omit the negative sign*
- The more elastic the good, the more you will react to price changes

Determinants of elasticity

- The more substitute goods there are, the higher the price elasticity of demand
- A good is more elastic if the change in price is affecting it solely than a whole group of goods of the same type
- More time to adjust, the more elastic the demand is
- The bigger the part of the budget spent for that good, the more elastic the demand is
- People’s taste





The flatter the curve, the more elastic the price elasticity of demand is

The slightest change in P, will drop Q demanded to 0

No matter the change in P, Q demanded will be the same

GRAPHICALLY

Classification of goods

$0 < |\varepsilon| < \infty$

- $\varepsilon > 1$ elastic
- $\varepsilon < 1$ inelastic
- $\varepsilon = 1$ unit elastic

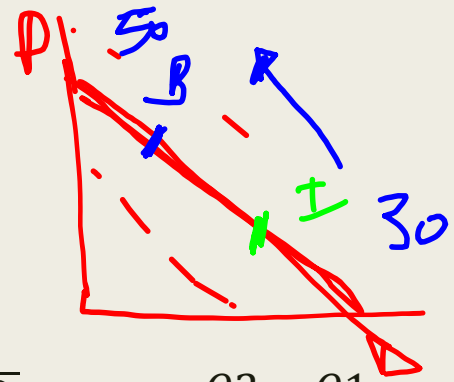
Revenue max and ε

- Revenue = Price*Quantity
- Firms' reactions to ε
  - *Increase P of inelastic goods*
  - *Decrease P of elastic goods*

Ways of calculating price ε of demand

- Arc elasticity – average ε over an interval

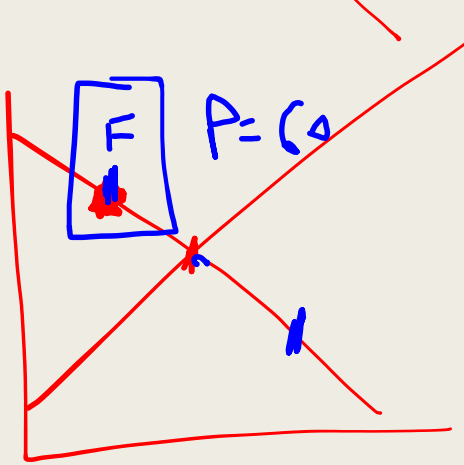
$$\varepsilon = \frac{\Delta\%Q}{\Delta\%P} = \frac{\frac{Q2-Q1}{(Q2+Q1)/2}}{\frac{P2-P1}{(P2+P1)/2}} = \frac{\frac{Q2-Q1}{Q2+Q1}}{\frac{P2-P1}{P2+P1}}$$



- Point elasticity – ε at a specific point

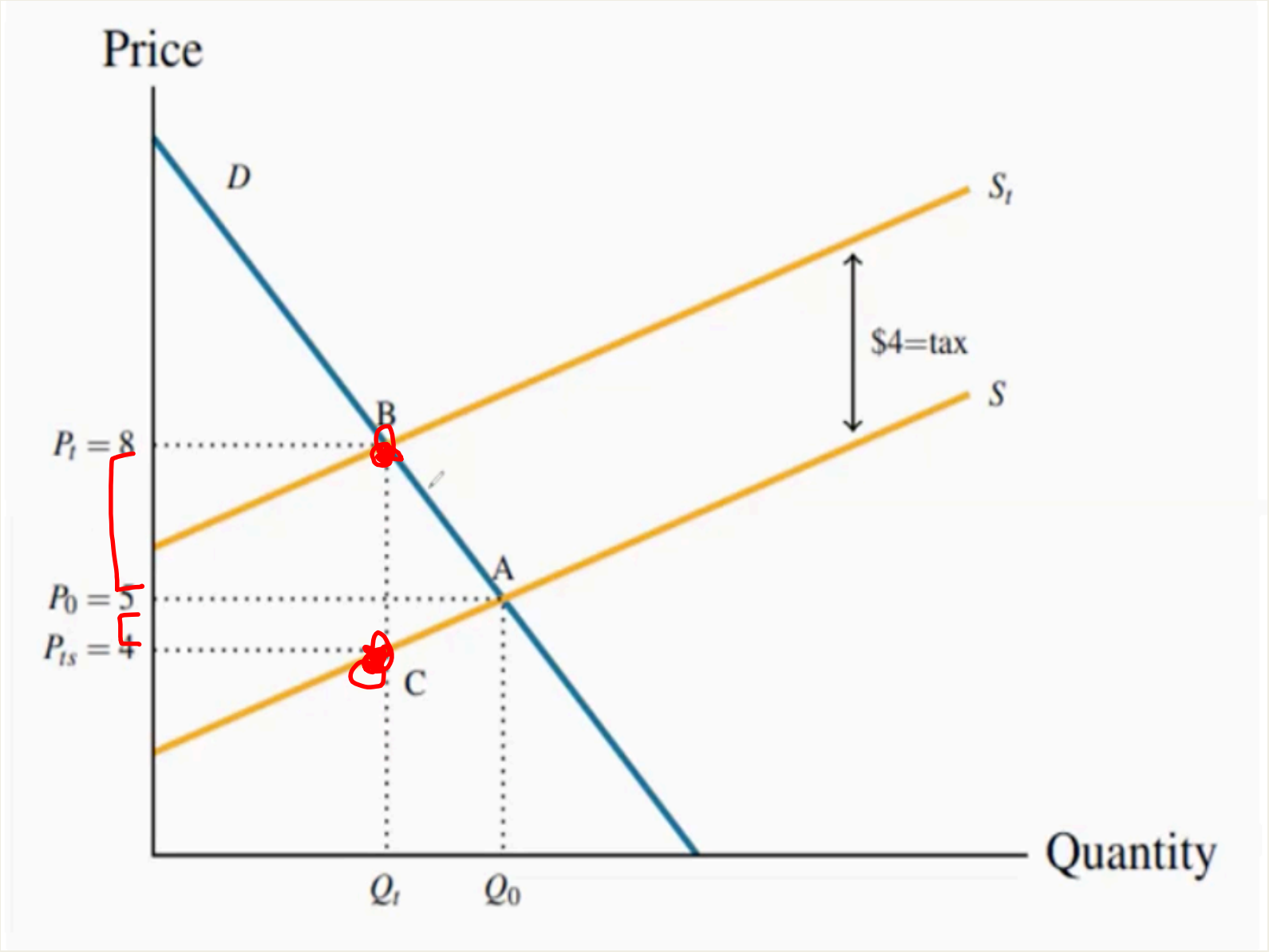
$$\varepsilon = \frac{\Delta\%Q}{\Delta\%P} = \frac{\frac{\Delta Q}{Q}}{\frac{\Delta P}{P}} = \frac{\Delta Q}{\Delta P} * \frac{P}{Q}$$

Slope of demand curve



Price elasticity of supply

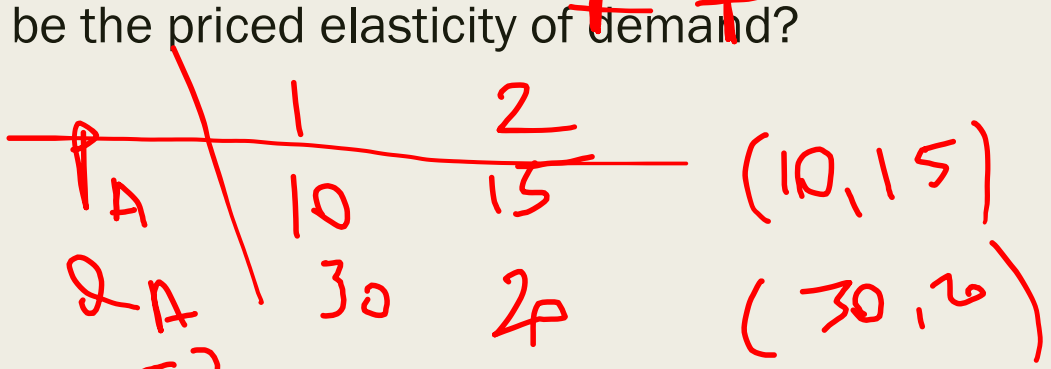
- Responsiveness of suppliers to a change in price
- Formula → $\varepsilon = \frac{\Delta\%\mathrm{Q}}{\Delta\%\mathrm{P}}$
  - *Will always be positive*



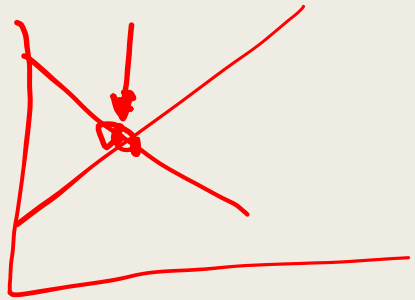
Tax incidence

- The most inelastic of 2 parties pays a bigger amount of tax
- Interpret it from the graph to calculate proportions

- Price of good A increases from 10 to 15 dollars and its quantity decreases from 30 to 20. What would be the priced elasticity of demand?



- D: Q = 200 – 3P and S: Q = 25 + 2P. Should the firm increase or decrease prices to increase revenues?



- Q = 200– 3P and Q = 25 + 2P. The government imposes a $10 tax on the supplier. Who is the more elastic: the consumer or supplier?

Cross–Price Elasticity

- Shows the responsiveness of a good (good A) to a change in price of another good (good B)

$$\varepsilon_{A,B} = \frac{\Delta\%QA}{\Delta\%PB} = \frac{\frac{Q_{A2}-QA_1}{\frac{(QA_2+QA_1)}{2}}}{\frac{P_{B2}-PB_1}{\frac{(PB_2+PB_1)}{2}}} = \frac{\frac{Q_{A2}-QA_1}{Q_{A2}+QA_1}}{\frac{P_{B2}-PB_1}{P_{B2}+PB_1}}$$

- $\varepsilon_{A,B} < 0$ → negative relationship between Q_A and P_B → B complement to A
- $\varepsilon_{A,B} > 0$ → positive relationship between Q_A and P_B → B substitute to A

$-\infty < \varepsilon_{A,B} < \infty$

Income Elasticity

- Responsiveness of a good to a change in income

$$\mu = \frac{\Delta\%Q}{\Delta\%\,I} = \frac{\frac{Q2-Q1}{\frac{(Q2+Q1)}{2}}}{\frac{I2-I1}{\frac{(I2+I1)}{2}}} = \frac{\frac{Q2-Q1}{Q2+Q1}}{\frac{I2-I1}{I2+I1}}$$

- $\mu_{A,B} < 0$ → negative relationship between Q and I → Good is inferior
- $\mu_{A,B} > 0$ → positive relationship between Q and I → Good is normal
  - Necessary → $0 < \mu < 1$
  - Luxury → $\mu > 1$

$-\infty < \mu_{A,B} < \infty$

	January	April
Income	15,000	20,000
Price of A	20	30
Quantity of A	300	500
Price of B	35	36
Quantity of B	200	120

a) Income elasticity of A and B. Find what type of goods A and B are
b) Elasticity of demand of B
c) Cross-price elasticity of good A with respect to the price of B
d) Cross-price elasticity of good B with respect to the price of A

c) $17,75 = \dfrac{\dfrac{Q_{A_2} - Q_{A_1}}{Q_{A_2} + Q_{A_1}}}{\dfrac{P_{B_2} - P_{B_1}}{P_{B_2} + P_{B_1}}}$

d) $\dfrac{\dfrac{Q_{B_2} - Q_{B_1}}{Q_{B_2} + Q_{B_1}}}{\dfrac{P_{A_2} - P_{A_1}}{P_{A_2} + P_{A_1}}} = -1,25$

< 0

Compl.

To subs

CHAPTER 4

Revision

Question 1

- If the price of good B increased by 20% and the quantity of good A decreased by 30%, good A is:
  a) *Substitute good*
  b) *Luxury good*
  c) *Inferior good*
  d) *Complementary good*

Question 2

- If the price of good increased by 20% and it’s quantity bought decreased by 30% the good is:
  a) *Inelastic*
  b) *Elastic*
  c) *Unit elastic*
  d) *Perfect elastic*

Question 3

- The price of a good increased by 10% but its quantity went to 0, the good is:
  a) *Inelastic*
  b) *Elastic*
  c) *Unit elastic*
  d) *Perfect elastic*

Question 4

- A good has a price elasticity of demand of -1 and its quantity decreased by 30%, by how much did the price increase?

Question 5

- Income increased and the quantity of a product increased by a smaller proportion. What type of good is it?
  a) *Inferior*
  b) *Necessity*
  c) *Luxury*
  d) *Superior*

Question 6

- The supply of salt is perfectly elastic, while the demand is not and a tax of $10 is imposed on the supplier. What portion of the tax will be payed by the supplier?
  a) *100%*
  b) *35%*
  c) *0%*
  d) *It is impossible to tell from the given information*

Question 7

- If income elasticity is -3 and income increased by 3%, the quantity changed by ____ and the good is _____
  - *a) -6%, luxury*
  - *b) -9%, inferior*
  - *c) 1% necessity*
  - *d) -1%, inferior*

Question 8

- If demand is P=330-(1/6)Q and supply is P=20+(1/4)Q, what is the price elasticity of demand at equilibrium?

Question 9

- Let demand be P=10-Q. At what price will point elasticity be 1?