Elasticity

Price Elasticity of Demand

Shop at H&M and receive 20% off

How responsive ?

If H&M reduced their price by 20% -

Consumer will Buy More

- ✓ How much more?

  Demand increases - but by how much?

CONSIDER A CASE

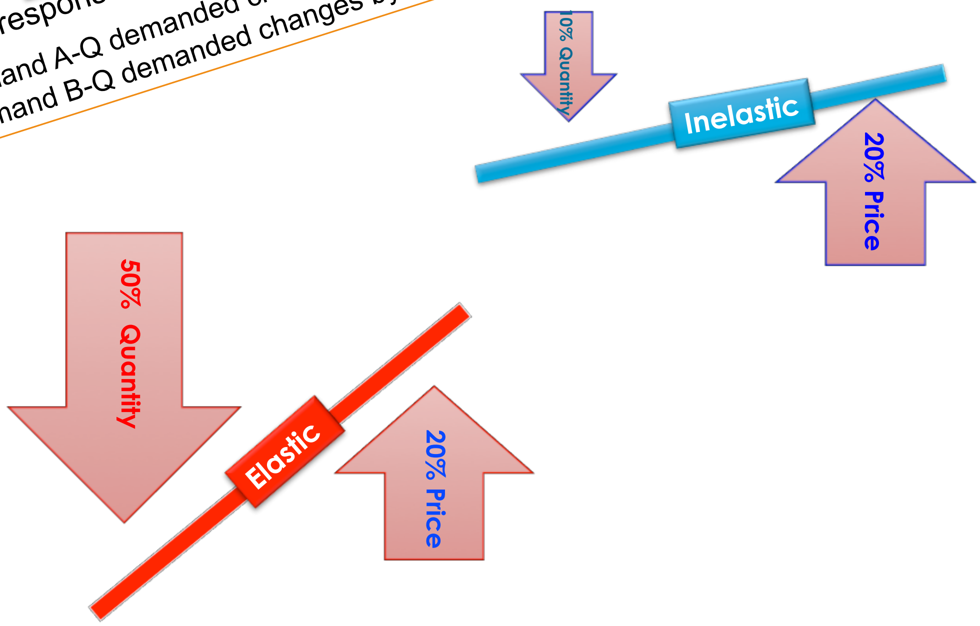
Price Increases by 20%

Price up by 20%

How responsive is demand?

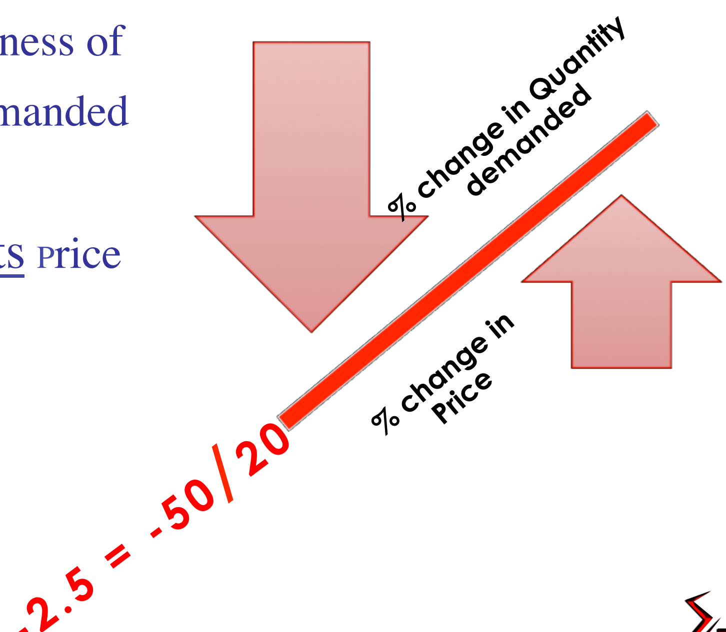
Demand A-Q demanded changes by 10%

Demand B-Q demanded changes by 50 %



HOW RESPONSIVE IS DEMAND- MEASURE IT

- Responsiveness of
- Quantity Demanded
- to a
- change in its Price



FORMULA: PRICE ELASTICITY OF DEMAND

$$\frac{\text{\% change in Quantity demanded}}{\text{\% change in Price}}$$

$$\frac{\text{Change in Quantity Demanded}}{\text{Average Quantity}} \qquad \frac{\text{Change in Price}}{\text{Average Price}}$$

$$\%\Delta Q = \Delta Q / Q_{average}$$

$$Q_{average} = (Q1+Q2)/2$$

PRICE ELASTICITY OF DEMAND

%ΔQ= $\Delta Q/Q_{average}$

$\Delta Q = 2$

$Q_{average} = \frac{11+9}{2}$

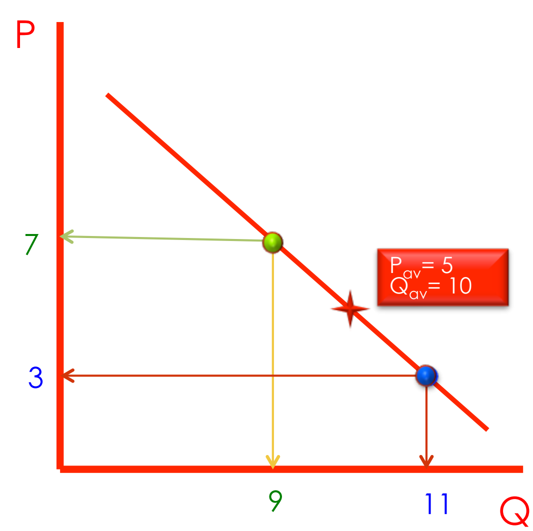
= 2/10 = 1/5.

%ΔP=$\Delta P/P_{average}$

= $\Delta P/P_{ave}$, = \$4/\$5

The price elasticity of demand is

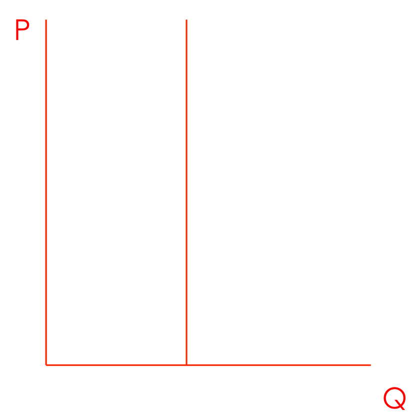
= %ΔQ/ %ΔP = (1/5)/(4/5) = 1/4.



PRICE ELASTICITY OF DEMAND

- Price elasticity of demand is zero

Perfectly inelastic demand

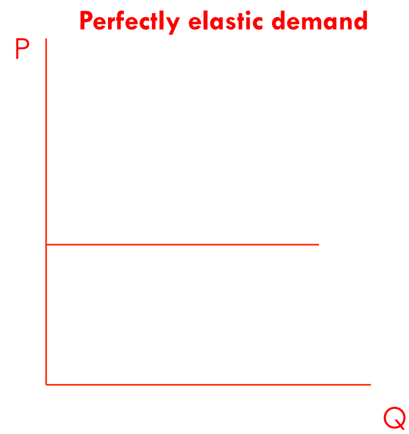


Vertical Demand

PRICE ELASTICITY OF DEMAND

- If the percentage change in the quantity demanded is infinitely large when the price barely changes, …

price elasticity of demand is infinite

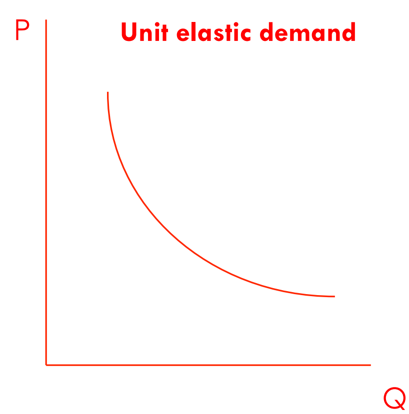


Horizontal

PRICE ELASTICITY OF DEMAND

If % change in quantity demanded = % change in price

- Price elasticity of demand =1

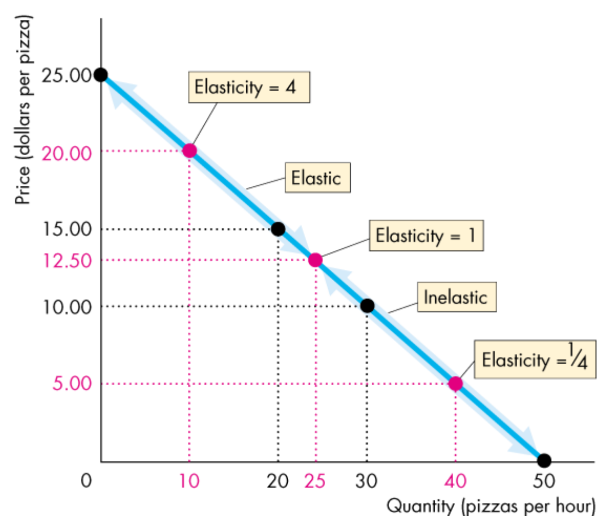


PRICE ELASTICITY OF DEMAND

- Total Revenue and Elasticity
  - The **total revenue** from the sale of good or service equals the price of the good multiplied by the quantity sold.
    - TR=P×Q
  - The change in total revenue due to a change in price depends on the elasticity of demand:

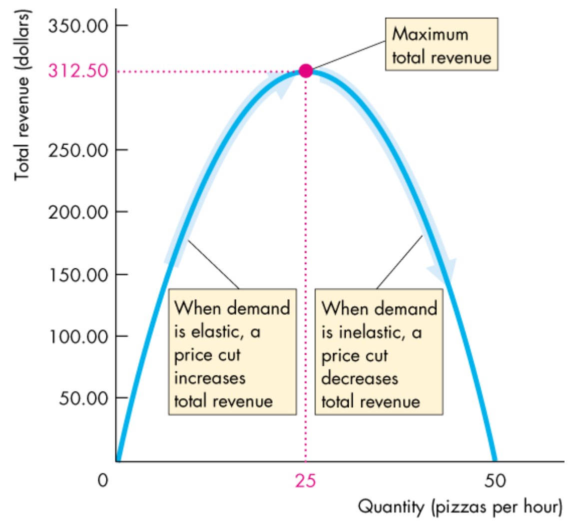
PRICE ELASTICITY OF DEMAND

- If the price falls from $15 to $10,



PRICE ELASTICITY OF DEMAND

As the quantity increases from 25 to 50 pizzas, demand is inelastic, and total revenue decreases.



(b) Total revenue

The demand curve for bus rides is a downward-sloping straight line.

The price elasticity of demand for bus rides _______.

- A. decreases as the price of a bus ride rises
- B. is the same no matter what the price of a bus ride
- C. increases as the price of a bus ride falls
- D. decreases as the price of a bus ride falls

If a price cut increases total revenue, demand is ______.

If a price cut decreases total revenue, demand is ______.

If a price cut leaves total revenue unchanged, demand is ______.

- A. inelastic; elastic; unit elastic
- B. elastic; inelastic; unit elastic
- C. elastic; unit elastic; inelastic
- D. unit elastic; inelastic; elastic

PRICE ELASTICITY OF DEMAND

- The Factors That Influence the Elasticity of Demand
  - The elasticity of demand for a good depends on:
  - The closeness of substitutes
  - The proportion of income spent on the good
  - The time elapsed since a price change

PRICE ELASTICITY OF DEMAND

- **Closeness of Substitutes**
- The closer the substitutes for a good or service, the more elastic are the demand for it.
- Necessities, such as food or housing, generally have inelastic demand.
- Luxuries, such as exotic vacations, generally have elastic demand.

PRICE ELASTICITY OF DEMAND

Proportion of Income Spent on the Good

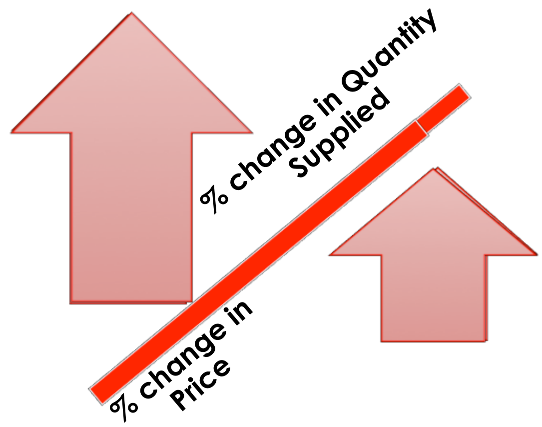
- The greater the proportion of income consumers spent on a good, the larger is its elasticity of demand.

Durability

- The longer that a good can be stored without losing its value, the more elastic is the demand for that good.

HOW RESPONSIVE IS SUPPLY- MEASURE IT

- Responsiveness of
  - Quantity Supplied
- to a
- change in its Price



FORMULA: PRICE ELASTICITY OF SUPPLY

$$\frac{\text{\% change in Quantity supplied}}{\text{\% change in Price}}$$

$$\frac{\text{Change in Quantity Supplied}}{\text{Average Quantity}} \qquad \frac{\text{Change in Price}}{\text{Average Price}}$$

PRICE ELASTICITY OF SUPPLY

%ΔQ

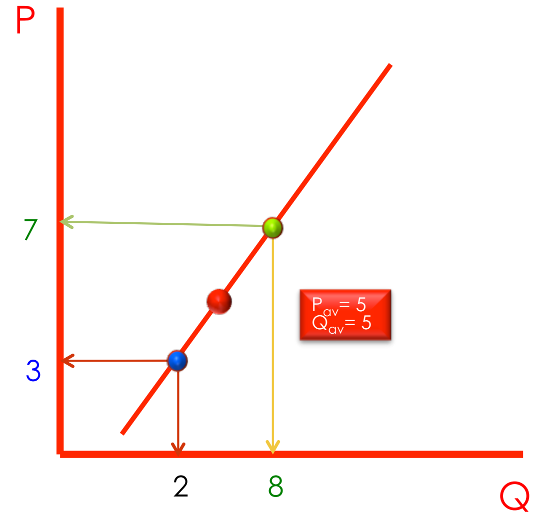
= $\Delta Q/Q_{ave}$, =6/5

%ΔP

= $\Delta P/P_{ave}$, =\$4/\$5

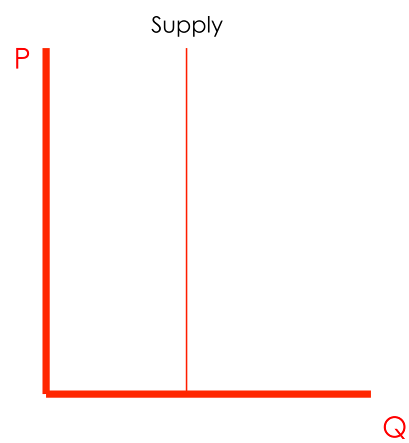
•The price elasticity of Supply is =

•**%ΔQ/ %ΔP = (6/5)/(4/5)**
= 6/4=1.5



PRICE ELASTICITY OF SUPPLY

- price elasticity of Supply is zero
- good has a perfectly inelastic Supply.



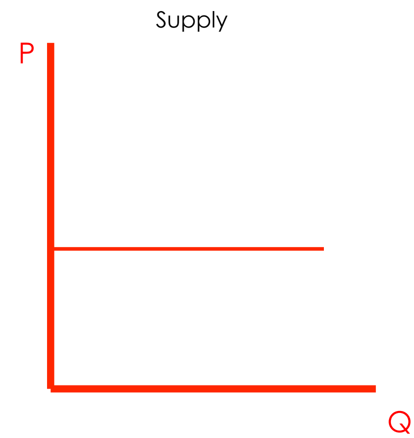
Vertical Supply

PRICE ELASTICITY OF SUPPLY

- If the percentage change in the quantity Supplied is infinitely large when the price barely changes, …

price elasticity of Supply is infinite

perfectly elastic Supply.



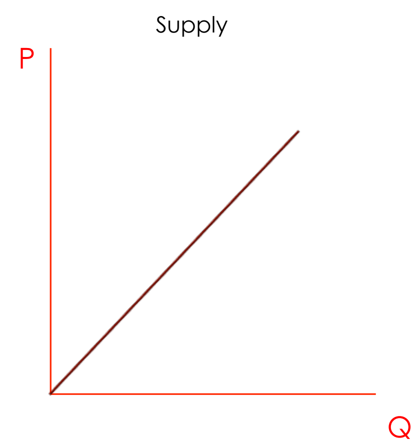
Horizontal

PRICE ELASTICITY OF SUPPLY

If % change in quantity Supplied = % change in price

Unit elastic Supply.

the price elasticity of Supply equals 1
Supply curve with ever declining slope.



ELASTICITY OF SUPPLY

- The Factors That Influence the Elasticity of Supply
  - **Resource Substitution Possibilities**
  - The easier it is to substitute among the resources used to produce a good or service, the greater is its elasticity of supply.

A decrease in the price of soap, a substitute in production for shampoo , will _______ the equilibrium price of shampoo and _______ the Equilibrium quantity of shampoo.

- A. decrease; increase
- B. decrease; decrease
- C. increase; increase
- D. increase; decrease

When the price of good A rises, the supply of good B shifts rightward. Which of the following statement is true?

- A. *A* and *B* are substitutes in production.
- B. *A* and *B* are substitutes.
- C. *A* and *B* are complements.
- D. *A* is a factor used in the production of *B*.
- E. *A* and *B* are complements in production.

CROSS PRICE ELASTICITY

CROSS PRICE ELASTICITY OF DEMAND

Responsiveness of

Demand for a good

to a change in

The price of another good

The formula for calculating the cross elasticity is:

$$\frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in price of substitute or complement}}$$

Not related

RELATED GOODS

Substitutes

Complements

RELATED GOODS

Substitutes	Complements
Cross price Elasticity is	Cross price Elasticity is
❑Positive	❑Positive
❑Negative	❑Negative

Cross P Elasticity = $\dfrac{\%\ \text{change in Qd of XBOX ONE}}{\%\ \text{change in } P_{PS4}}$

"The two consoles are, in many ways, extraordinarily similar.. Both have Blu-Ray, DVR capabilities,.. processor specs also appear to be remarkably alike…….

Source:http://www.forbes.com/sites/erikkain/2013/07/25/xbox-one-vs-ps4-why-sony-is-still-the-best-choice-for-gamers/

Substitutes: Cross price elasticity is ______

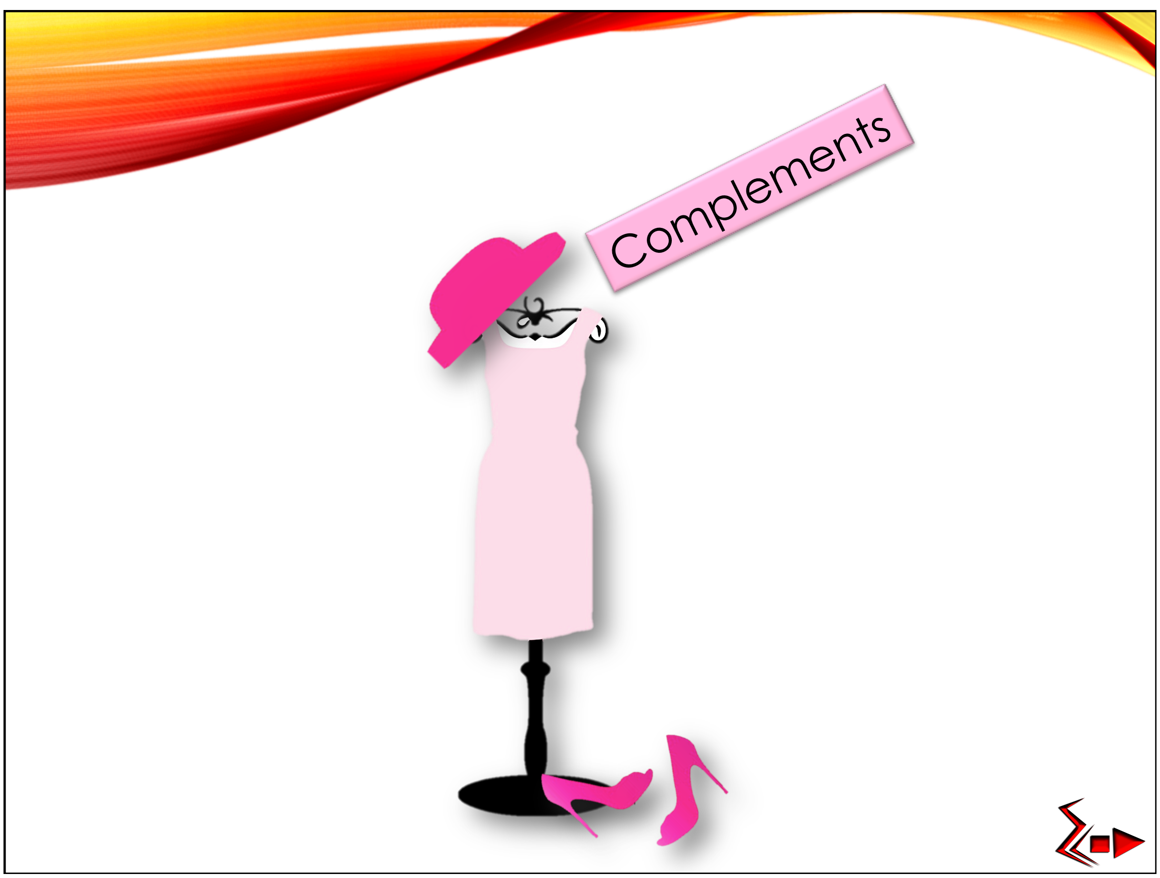
$$\text{Cross P Elasticity} = \frac{\%\text{ change in Qd of Pepsi}}{\%\text{ change in } P_{Coke}}$$

As P_{Coke} increases - Quantity demanded of Coke decreases
&
Demand for Pepsi increases

Compliments: Cross price elasticity is

$$\text{Cross P Elasticity} = \frac{\%\text{ change in Qd of cofee}}{\%\text{ change in } P_{cream\&\ Sugar}}$$


Substitutes


Complements

The Cross Price Elasticity of Demand

- a *substitute* is positive.

$P_{XBOX} \uparrow \Rightarrow \uparrow D_{PS4}$

$P_{XBOX} \downarrow \Rightarrow \downarrow D_{PS4}$

- a *complement* is negative.

Price of pink dress ↓ ⇒ Demand for Pink Hat and shoes ↑

RELATED GOODS

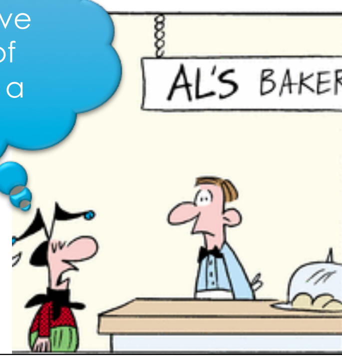
Substitutes	Complements
Cross price Elasticity is	Cross price Elasticity is
☒Positive	❑Positive
❑Negative	☒Negative

Substitutes: WHY NOT?

AL'S Bakery uses
the finest RUM for
their Cakes

What
should I
substitute
it for ?

Ok – I'll have
a bottle of
RUM and a
Muffin.



RELATED GOODS

Substitutes	Complements

Substitutes

- PS4 & XBOX
- Coke & Pepsi
- Different shades and Styles of Pink dresses

Complements

- Tea & Milk
- Tea & Sugar
- Pink Dress & Pink accessories
- Left foot shoe & Right foot shoe.