



AQA - A Level Economics

Individuals, Firms, Markets & Market Failure

3.2 Price determination in a competitive market

Worked Examples

Contents

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- Price determination in a competitive market

3. Price determination in a competitive market

Exam Style Question 1

The table shows the quantity of PlayStation 4 games demanded and supplied.

Price	Quantity demanded per month (000s)	Quantity supplied per month (000s)	New quantity supplied per month (000s)
£25	400	320	
£30	360	360	
£35	320	400	
£40	280	440	
£45	240	480	

As a result of an increase in packaging costs for the games, supply decreased by 80,000 at all prices.

Calculate the change in equilibrium price given the increase in packaging costs. Use the last column for your workings. [4]

3. Price determination in a competitive market

Exam Style Question 1

Answer:

PlayStation 4 game supply dropped by 80,000 due to higher packaging costs. Let's find the new equilibrium price where demand equals supply.

Price	Quantity demanded per month (000s)	Quantity supplied per month (000s)	New quantity supplied per month (000s)
£25	400	320	$320 - 80 = 240$
£30	360	360	$360 - 80 = 280$
£35	320	400	$400 - 40 = 320$
£40	280	440	360
£45	240	480	400

Complete table with all correct answers [2]

Equilibrium price is where quantity demanded (QD) = quantity supplied (QS) therefore:

- Current equilibrium price = **£30** (QD = 360, QS = 360)
- New equilibrium price = **£35** (QD = 320, QS = 320) [1]

Therefore, change in the equilibrium price is $£35 - £30 = £5$ increase. [1]



3. Price determination in a competitive market

Exam Style Question 2

The table shows market data for e-cigarette kits. The original equilibrium price is £23.

Price (£)	Quantity demanded per month (000s)	Quantity supplied per month (000s)	New quantity demanded per month (000)	New quantity supplied per month (000s)
25	5	9		
24	6	8		
23	7	7		
22	8	6		
21	9	5		

As a result of a successful advertising campaign, demand increased by 3,000 e-cigarette kits at all prices. At the same time production costs fell leading to an increase in supply of 1,000 e-cigarette kits at all prices.

Calculate the new equilibrium price and quantity following the successful advertising campaign and the fall in production costs. Use the last two columns for your working. [4]

3. Price determination in a competitive market

Exam Style Question 2

Answer:

An ad campaign boosted demand for e-cigarette kits, and cheaper production increased supply. Let's find the new equilibrium price and quantity where demand meets supply.

Price (£)	Quantity demanded per month (000s)	Quantity supplied per month (000s)	New quantity demanded per month (000)	New quantity supplied per month (000s)
25	5	9	$5+3=8$	$9+1=10$
24	6	8	$6+3=9$	$8+1=9$
23	7	7	$7+3=10$	$7+1=8$
22	8	6	11	7
21	9	5	12	6

Complete table with all correct answers [2]

Equilibrium price is where quantity demanded (QD) = quantity supplied (QS) therefore:

- Current equilibrium price = **£23** (QD = 7000, QS = 7000)
- New equilibrium price = **£24** (QD = 9000, QS = 9000) [2]



3. Price determination in a competitive market

Exam Style Question 3

In August 2017 Hurricane Harvey caused the closure of nearly a quarter of the oil production capacity in the United States.

Draw a supply and demand diagram to show the likely microeconomic effects of the hurricane on the US oil market. [4]

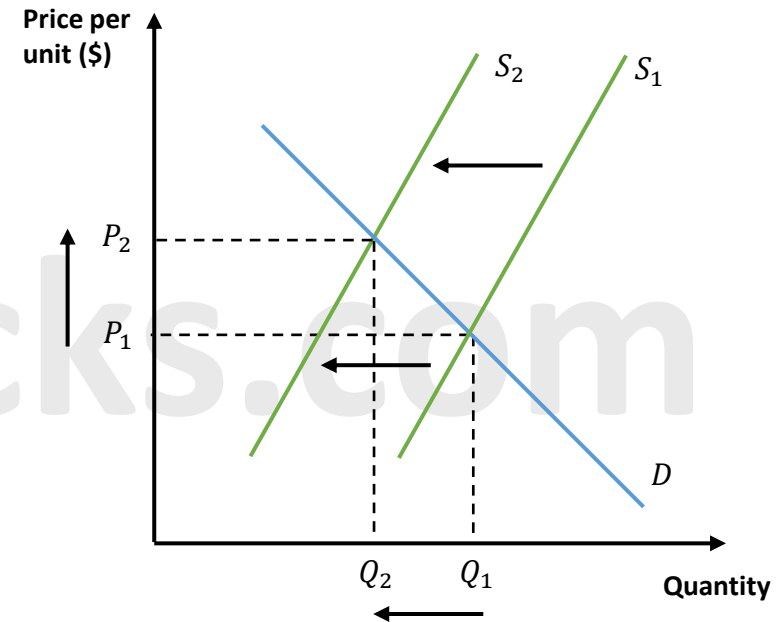


3. Price determination in a competitive market

Exam Style Question 3

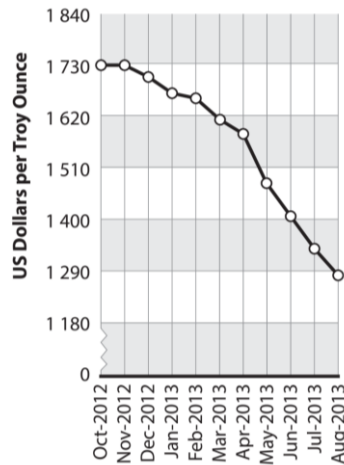
Answer:

Hurricane Harvey shut down a quarter of US oil production. That's a **big hit to supply**, meaning there's less oil available in the market.



3. Price determination in a competitive market

Exam Style Question 4



(Source:
<http://www.indexmundi.com/commodities/?commodity=gold&months=60>)

The graph shows the price of gold per Troy Ounce between October 2012 and August 2013. Which one of the following is a possible reason for the trend shown over the period?

- A: An increase in demand for gold jewellery in India and China.
- B: The sale of gold reserves by several European Central banks including Cyprus and Germany.
- C: An increase in the cost of machinery used in South African gold mining.
- D: Speculative buying of gold following expectations of rising inflation.

Answer

☐

Explanation [3]

You may use a demand and supply diagram in your answer.

3. Price determination in a competitive market

Exam Style Question 4

Answer:

B [1]

The data shows there is a fall in price of gold e.g., \$1,730 per Troy ounce to \$1,290 per Troy ounce. [1]

If central banks (like those in Europe) sell off large amounts of gold reserves, the supply of gold increases in the market. More supply = lower prices. [1]

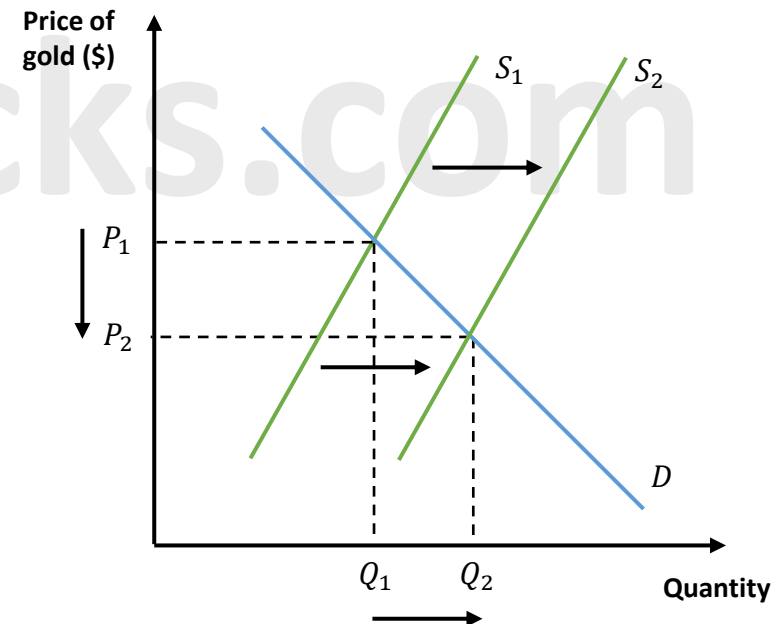
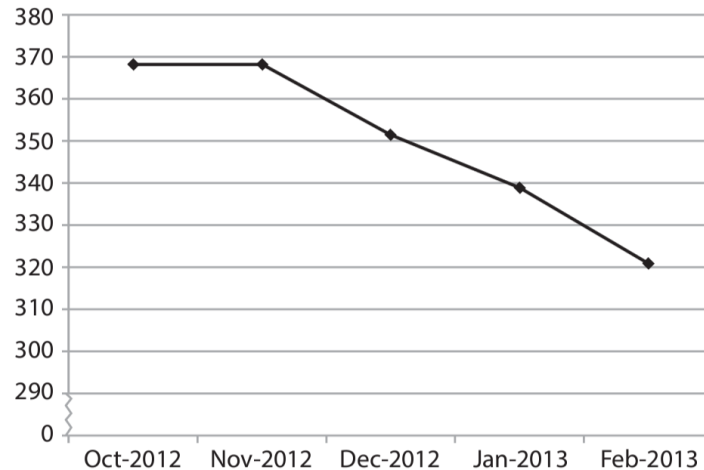


Diagram [2]

3. Price determination in a competitive market

Exam Style Question 5

The price of black tea, US cents per kilogram.



(Source: © IMF)

The graph shows the price of tea between October 2012 and February 2013. (You may use a demand and supply diagram in your answer.)

- A: An increase in the wages of tea growers.
- B: An increase in the price of coffee.
- C: A larger tea harvest than expected.
- D: A decrease in the price of sugar.

Answer

Explanation [3]

3. Price determination in a competitive market

Exam Style Question 5

Answer:

C [1]

The data shows there is a fall in price of black tea e.g., from 368 cents to 321 cents per kilo. [1]

Larger harvests = more supply. An increase in tea crop means there's more tea in the market. When supply increases, price falls. [1]

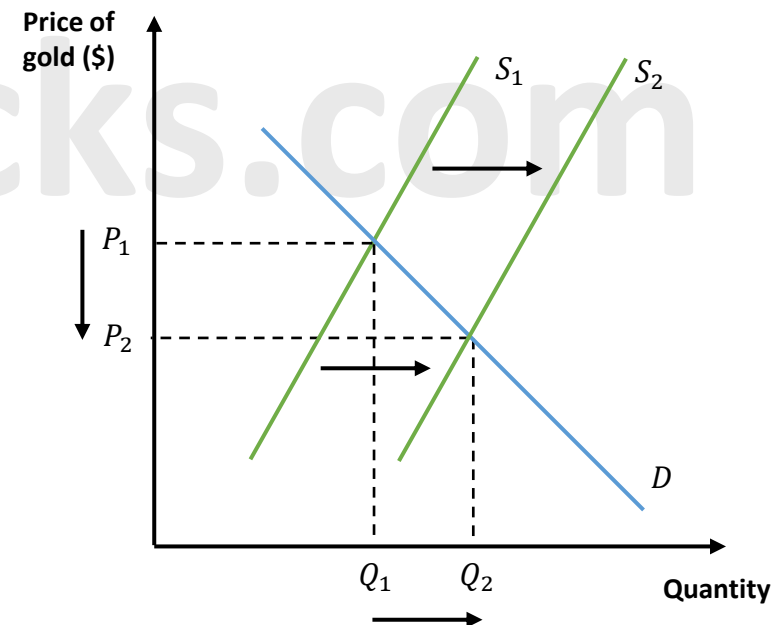


Diagram [2]



3. Price determination in a competitive market

Exam Style Question 6

(a) The income elasticity of demand for bus travel is estimated to be -1.5. This implies that:

[1]

A: A 10% increase in fares will lead to a 15% decrease in passengers.

B: As unemployment falls, more people will use buses.

C: Bus travel has a negative cross elasticity of demand compared to rail travel.

D: Bus travel is an inferior good.

(b) Explain why a firm might try to reduce the price elasticity of demand (PED) for its product. [3]

3. Price determination in a competitive market

Exam Style Question 6

Answer:

(a) D [1]

Explanation:

A incorrect as this is about price elasticity, not income elasticity.

B incorrect as unemployment falls fewer people will use buses.

C incorrect negative cross elasticity would mean buses and rail are complements, but this isn't implied here.

D correct. A negative income elasticity (-1.5) means it's an inferior good – people switch to alternatives (like cars) when their income rises.

(b) **Answer**

Knowledge/Understanding [1]

- The lower the **PED**, the less sensitive customers are to price changes.
- This means that even if the price goes up, the **quantity demanded** doesn't decrease much.

Application [1]

- For example, if a product has a PED of **-0.1** and the price increases by **10%**, sales will only fall by **1%** (ceteris paribus).
- This means the **extra revenue from the 10% higher price** would more than make up for the **small drop in sales**.

Analysis [1]

- When a product has a low PED, it's easier for a business to increase revenue by raising prices.
- Since demand doesn't fall much, the firm earns more from the higher price, boosting **total revenue**.



3. Price determination in a competitive market

Exam Style Question 7

Between 2016 and 2017 the average price of new build houses in the UK rose by an estimated 5.4%.

Year	Quantity of UK new house builds
2016	134 612
2017	162 880

(Source: <http://www.telegraph.co.uk/business/2017/05/25/number-new-homes-built-hits-highest-level-since-financial-crisis/>)

- (a) With reference to the data provided, calculate the price elasticity of supply for new house builds between 2016 and 2017. You are advised to show your workings. [2]
- (b) A 2.5% increase in new build house prices in one region of the UK causes a 10% increase in the number of houses built. Ceteris paribus, this suggests that supply of new house builds is:

[2]

- A: Perfectly price elastic
B: Perfectly price inelastic
C: Relatively price elastic
D: Relatively price inelastic

- (c) Explain **one** factor that is likely to determine the price elasticity of supply of new house builds. [2]

3. Price determination in a competitive market

Exam Style Question 7

Answer:

(a) Calculate PES

$$PES = \frac{\% \text{ change in quantity supplied}}{\% \text{ change in price}}$$

Step 1: Find the % change in quantity supplied:

$$\% \text{ change in quantity} = \frac{\text{New quantity} - \text{Old quantity}}{\text{Old quantity}}$$

$$\% \text{ change in quantity} = \frac{162,880 - 134,612}{134,612} \times 100 = 21.0\% \text{ [1]}$$

Step 2: % change in price

This is already given as 5.4%.

Step 3: Calculate PES

$$PES = \frac{21}{5.4} = 3.89$$

Answer: The PES is 3.89. [1]

(b) Interpretation of the scenario

If a 2.5% price increase causes a 10% increase in supply, the supply is **relatively price elastic** because the percentage change in supply is much larger than the change in price.

Answer: C

Other reasons:

- **A incorrect** because PES does not equal to infinity.
- **B incorrect** because PES does not equal to zero.
- **D incorrect** because PES is not less than one.

3. Price determination in a competitive market

Exam Style Question 8

Between 2016 and 2017 the average price of new build houses in the UK rose by an estimated 5.4%.

Year	Quantity of UK new house builds
2016	134 612
2017	162 880

(Source: <http://www.telegraph.co.uk/business/2017/05/25/number-new-homes-built-hits-highest-level-since-financial-crisis/>)

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C: Relatively price elastic
D: Relatively price inelastic

(c) Explain **one** factor that is likely to determine the price elasticity of supply of new house builds. [2]

3. Price determination in a competitive market

Exam Style Question 8

Answer:

(c) **One factor determining PES.**

One major factor that affects the price elasticity of supply for new house builds is the **time it takes to build houses [1]**. Housing supply is often **inelastic in the short term** because it takes time to plan, get permits, and complete construction [1]. However, in the long term, supply can become more elastic as builders have more time to respond to changes in demand and price.

Other factors determining PES:

- Levels of spare capacity
- Stocks of finished goods and components available (e.g. bricks)
- Time period and production speed
- Level of factor mobility/flexibility
- Availability of bricklayers, electricians, et...
- Availability of land
- Planning permission/regulations
- Availability of technology/machinery to build.

Another explanation:

- Limited availability of land/builders so supply will be inelastic.



3. Price determination in a competitive market

Exam Style Question 9

Amazon Prime, Netflix and NowTV all charge £7.99 per month for streaming very similar film and television services.

- (a) The most likely cross price elasticity of demand for close substitutes is:

[1]

A: - 2.1

B: - 0.1

C: + 0.1

D: + 2.1

In 2016 the average cinema ticket price in the UK was £7.41, and there were 19.1 million ticket sales. The price elasticity of demand was estimated to be -0.5.

- (b) Calculate the new total revenue if prices were raised by 3% in 2017 to £7.63, if everything else remained unchanged. You are advised to show your working. [3]

3. Price determination in a competitive market

Exam Style Question 9

Answer:

(a) Cross Price Elasticity of Demand

The question asks for the **most likely cross-price elasticity** for close substitutes, like Amazon Prime, Netflix, and NowTV.

Close substitutes have a **positive cross-price elasticity** because if one service raises its price, demand for its competitors will increase.

- The correct answer is **D: +2.1**, which indicates a strong positive relationship typical for close substitutes. [1]
- **C is not correct** because whilst positive is a substitute a figure less than one does not indicate a close relationship.

(b) New total revenue for cinema tickets

Step 1: Formula for Revenue

$$\text{Total Revenue} = \text{Price} \times \text{Quantity} \text{ [1]}$$

Step 2: Calculate % change in quantity:

We know $PED = -0.5$ and $\% \text{change in price} = +3\%$, therefore:

$$\% \text{change in quantity} = PED \times \% \text{change in Price}$$

$$\% \text{change in quantity} = -0.5 \times 3 = -1.5\% \text{ [1]}$$

Step 3: Find new quantity

Original quantity = 19.1 million

$$\text{New quantity} = 19.1 - (19.1 \times 0.015) = 18.8135 \text{ million tickets}$$

Step 4: Calculate new revenue

New price: £7.63

$$\text{New revenue} = 7.63 \times 18.8135 = \text{£143.5 million} \text{ [1]}$$



3. Price determination in a competitive market

Exam Style Question 10

In February 2016, the Daily Mail newspaper increased its price from 60p to 65p. By August 2016, its sales had fallen by 5.41%.

- (a) Ceteris paribus, calculate the price elasticity of demand for the Daily Mail newspaper over this period. You are advised to show your working.

[2]

- (b) Which **one** of the following is most likely to be a determinant of price elasticity of demand for the Daily Mail newspaper?

[1]

- A: Availability of rival newspapers
B: Change in population size
C: Decrease in the cost of producing the Daily Mail newspaper
D: Expected rise in the price of the Daily Mail newspaper

3. Price determination in a competitive market

Exam Style Question 10

Answer:

(a) Calculate Price Elasticity of Demand (PED)

Formula for PED:

$$PED = \frac{\% \text{ change in quantity demanded}}{\% \text{ change in price}}$$

Step 1: Calculate % change in price:

$$\% \text{ change in price} = \frac{\text{New price} - \text{old price}}{\text{old price}} \times 100$$

$$\% \text{ change in price} = \frac{65p - 60p}{60p} \times 100 = 8.33\%$$

Step 2: Calculate the % change in quantity demanded:

Given as -5.41% (sales fell)

Step 3: Calculate PED

$$PED = \frac{-5.41}{8.33} = -0.65 \text{ [2]}$$

The PED is -0.65, meaning demand is price inelastic.

(b) Determinant of PED

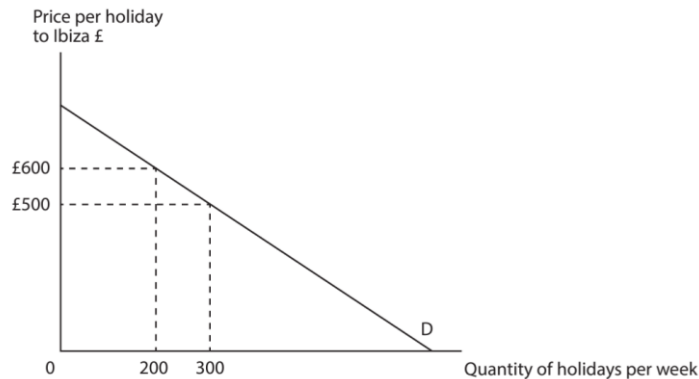
The availability of **rival newspapers** (other options people can switch to) is the most likely determinant of the price elasticity of demand for the Daily Mail. More substitutes = higher elasticity.

Answer: A: Availability of rival newspapers [1]



3. Price determination in a competitive market

Exam Style Question 11



The diagram shows the demand curve faced by a firm selling holidays to Ibiza. If the firm increases the price of its holidays from £500 to £600 then, other things being equal, its weekly total revenue will

[1]

- A: increase, since demand is price inelastic
- B: decrease, since demand is price elastic
- C: increase, since demand is price elastic
- D: decrease, since demand is price inelastic

Answer

Explanation [3]

3. Price determination in a competitive market

Exam Style Question 11

Answer:

B [1]

Explanation:

Definition: Price of elasticity of demand is the responsiveness of demand for a good due to a change in its price **OR** $PED = \frac{\% \Delta QD}{\% \Delta P}$. [1]

Definition: Total revenue is the total amount of money received by producers from selling a given quantity of a good **OR** $Total\ revenue = price \times quantity$. [1]

The diagram shows that when the price increases from £500 to £600, the number of holidays sold drops **a lot** (from 300 to 200). This big drop in quantity demanded tells us that demand is **price elastic** (sensitive to price changes). [1]

$$Total\ Revenue = Price \times Quantity$$

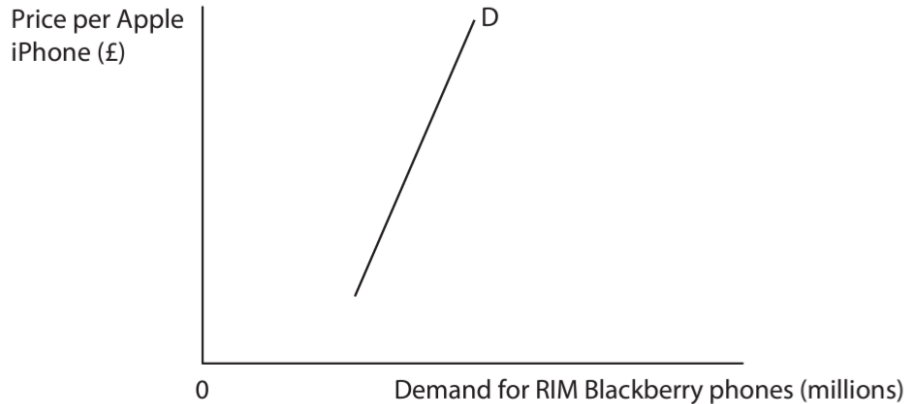
Let's calculate it:

- At £500: $500 \times 300 = £150,000$
- At £600: $600 \times 200 = £120,000$

Total revenue **decreases** because the higher price leads to a much bigger percentage drop in quantity demanded. [1]

3. Price determination in a competitive market

Exam Style Question 12



The diagram shows the relationship between the **price** of the Apple iPhone and the **demand** for the RIM BlackBerry phone. It can be deduced from the diagram that these two goods

[1]

- A: are price elastic in demand
- B: have a negative cross elasticity of demand
- C: have a zero cross elasticity of demand
- D: are substitutes for each other

Answer

☐

Explanation [3]



3. Price determination in a competitive market

Exam Style Question 12

Answer:

D [1]

Explanation:

Definition: Cross elasticity of demand is the responsiveness in demand for one good due to a change in price of another good **OR**

$$XED = \frac{\% \Delta QD \text{ of good } B}{\% \Delta P \text{ of good } A} \cdot [1]$$

The diagram shows that as the **price of the Apple iPhone increases**, the **demand for RIM BlackBerry phones increases**. [1]

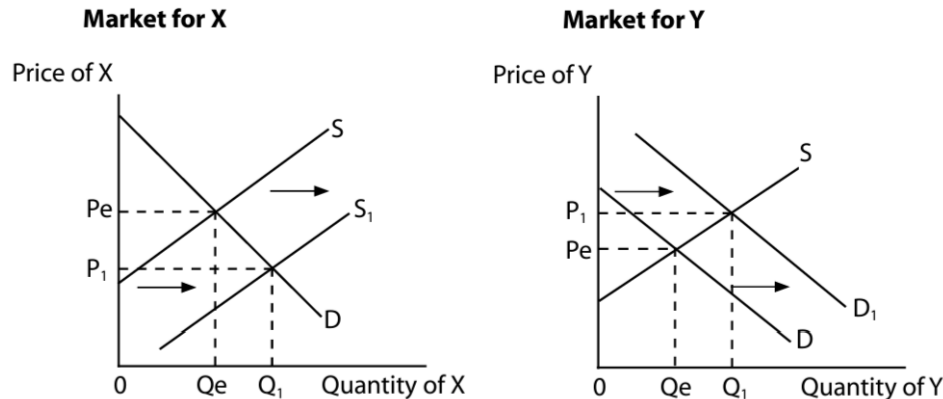
This positive relationship or positive gradient between the price of one product and the demand for another indicates that the two goods are **substitutes**. [1] When iPhones become more expensive, people switch to the cheaper alternative, which in this case is the BlackBerry.

Rejection marks

- **A: Incorrect** since graph refers to cross elasticity of demand not price elasticity of demand. [1]
- **B: Incorrect** since it is complementary goods that have a negative XED. [1]
- **C: Incorrect** since a zero XED means there is no relationship between Apple iPhone and BlackBerry. There would be a vertical line in the diagram. [1]

3. Price determination in a competitive market

Exam Style Question 13



The diagrams show the effects of an increase in supply of good X on the demand and price of good Y. Which of the following is most likely to be represented by good X and good Y?

[1]

- A: Lamb and chicken
- B: Bus travel and potatoes
- C: Computer games consoles and computer games software
- D: Leather and beef

Answer

Explanation [3]



3. Price determination in a competitive market

Exam Style Question 13

Answer:

C [1]

Explanation:

Definition: Cross elasticity of demand is the responsiveness in demand for one good due to a change in price of another good **OR**

$$XED = \frac{\% \Delta QD \text{ of good B}}{\% \Delta P \text{ of good A}} \quad [1]$$

Games console and software games are complementary goods. [1]

The supply of good X increases, causing the price of X (consoles) to fall. As a result, more people buy good X (consoles). Because more people now own consoles, the demand for complementary good Y (game software) increases. This pushes the price and quantity of Y up. [1]

Rejection marks

- **A: Incorrect** since lamb and chicken are substitutes. A decrease in price of one will cause a decrease in demand for the other [1]
- **B: Incorrect** as these goods are unrelated. A cheaper bus ride won't make people buy more potatoes. [1]
- **D: Incorrect** since they are joint products (produced together). [1]

Please see the '3.1 Price determination in a competitive market Revision Notes' pack for detailed notes.

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