Zig Zag Education

Economics AS and A Level | OCR | H060 / H460

2015 specification
first exams in 2017 (2016 for AS)

Quantitative Skills for AS and A Level OCR Economics

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Contents

Teacher's Introduction

OCR have published a list of the quantitative skills in Economics required for the new course. 15% of the overall marks awarded at AS and 20% of the marks at A Level will require 'at least Level 2 [GCSE] mathematical skills'. Each of the 11 skills tested could come up in both AS and A Level exams, making this resource relevant to both specifications. Some of the example to which the skills are applied are only relevant to A Level students; this is highlighted in the 'Specification Overview' section introducing each skill.

Economics students sometimes find the numerical skills required for success a challenge. This resource has been produced with the intention of providing them with the opportunity to review the specific topics and concepts mandated by the exam board that require numerical understanding. Where possible, data from real-world sources is used to expand contextual understanding. This will help with the data response questions found in the exams as well as aiding students to 'think like an economist' more generally.

Each section within the resource allows students to examine both theoretical notes and worked examples. Theory is discussed when needed but the focus is on quantitative methods.

Students have the opportunity to complete practice questions, some of which are in exam style, which will help develop the necessary numerical skills and consolidate understanding. These questions should build students' confidence in having the required ability to demonstrate their full potential in AS and A Level Economics, in both class and examination conditions.

This resource covers all of the topics mentioned in the quantitative skills annex of the OCR specification. Each skill is structured as follows:

- **Part A: Specification Overview** – this provides an overview of the term or concept specified by the exam board and the understanding required. This includes details of where skills are applied to A Level only material.
- **Part B: Theoretical Overview** – a brief summary of the key points associated with the numerical term/concept.
- **Part C: Example** – detailed numerical and written responses to exam-style questions.
- **Part D: Practice Activity** – each skill is concluded with practice activities that allow students to demonstrate their understanding of the relevant terms and concepts.

OPTIONAL EXTRA: There is the option of a separate workbook which combines all of the questions in the Part D practice activities into one stand-alone practice resource.

This is followed by:

- A **Quantitative Skills Assessment Activity** which provides students with the opportunity to complete an assessment which is presented in a format similar to that which they will encounter in their exams.
- **Suggested Answers to Practice Activities** which provides a mark scheme for the practice activities that appear in Skills 1 to 11.
- The **Mark Scheme for Quantitative Skills Targeted Test** which provides a mark scheme for exam-style assessment.
- And finally, a short **appendix** with some key economic indicators for the UK provided as reference.

Student Introduction

Economics is the science of choice. In order to analyse and inform the choices of i
governments the subject has to be a quantitative discipline. At AS and A Level the
Maths but the key is that maths is not used for the sake of it: there is always a pu
questions are an opportunity to apply your economic knowledge to real data.

Those taking A Level Maths should find most of the quantitative content straightf
worry. If stuck with a question then don't panic: all of the information you need is
think 'what can I do with these numbers?'.

This resource will guide you through the quantitative skills required for the course
have covered a lot of it already at GCSE level – means, medians, ratios and fractio
useful for you to work through the questions and examples to expose yourself to
context. By practising the techniques you will ensure some relatively easy marks i
more time for the longer-answer questions. Good luck!

SKILL 1: CALCULATE, USE AND UNDERSTAN

Part A: Specification Overview

The idea of ratio and proportion is important and relevant throughout the specifi
feature when considering spending decisions (e.g. the savings ratio) and when co
(concentration ratio at A Level only). Other ratios mentioned include the depende
ratio, which are covered in a labour market context at A Level only. The multiplie
in more depth at A Level.

Part B: Theoretical Overview

A ratio is a comparison between two quantities. Usually these are expressed as 'X
of 6: 8 boys to girls in a class tells us that there are 6 boys for every 8 girls. There
example – 12 boys and 16 girls.

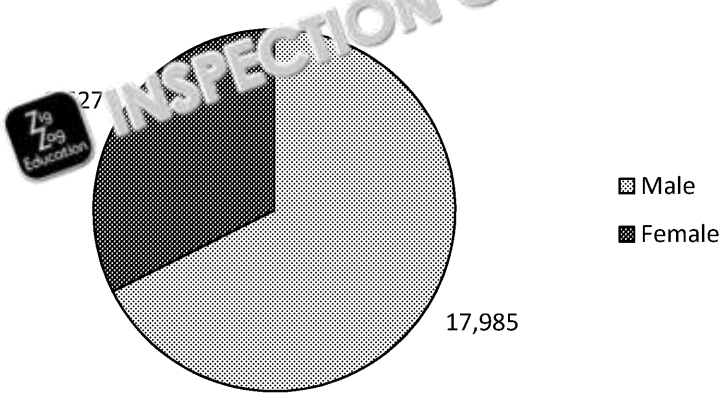
The ratio in the example above can be reduced from 6: 8 to 3: 4. It still tells us exa
quantities of boys and girls remain unchanged. We could reduce it even further. 1
indicates the same thing – but of course pupils can't be divided so it's best to stic
when talking about people.

In Economics we usually talk about divisible quantities such as money so we can i
Additionally, a ratio in Economics is much more likely to be expressed as just one
format. This is because the other option is often implicit. If we talk about the 'sav
proportion of income that a person (or population) saves. The other option is to s
understood, and not stated explicitly. Hence, the savings ratio takes the form of j
the ratio has been reduced down, like we did with the pupils, to take a form very
allows us to think of the ratio more clearly as a *proportion*.

A typical savings ratio might be 0.15. In the traditional ratio format this would be
out the second part. This is because the ratio has been reduced so both sides sum
other half from this (if necessary). It is very easy to convert this form into a perce
Indeed, ratios will often be expressed in percentage terms. For further discussion
Skill 2 (Percentages).

Note that proportions (and percentages) of a whole may be shown visually as a p
used to show changes over time. Below is an example – the proportion of each ge
in 2014:

A Level Economics Students 2014
(Total: 26,612)



Source: JCQ

The multiplier ratio

A specific ratio calculation that is required at AS Level is the *multiplier ratio*. The i
developed in the 1930s and advocated by the British economist John Maynard Ke

The idea is relatively simple. An initial injection of capital into an economy will lea
income. This is because the money will stimulate further spending which in turn v
spending, and so on: '*the circular flow of income*'. Imagine the government comm
which costs £100m. The contractors on the project will save some of the money –
generates an additional income stream for cafes, pubs and hotels where the work
further afield too (Internet shopping!). So although the initial project cost £100m
increase in national income, say. In this case the multiplier would be 3.

Calculating the multiplier

We can calculate a numerical value for the multiplier – known as the multiplier ra
money is withdrawn from the circular flow of income.

To do this we consider the *propensity* (tendency) of agents to do certain things w
received. Any additional income can be consumed (spent on goods and services),
goods from another economy. These are the marginal propensities to consume (M
(MPS) and to import (MPM) respectively.

The marginal propensities to tax, save and import are all *withdrawals* from the ec
grouped together as the marginal propensity to withdraw (MPW):

$$MPW = MPS + MPT + MPM$$

Because we are considering *ratios* and *proportions* of total spending we can easily
propensity to consume (MPC) if we have a value for MPW. The two values will su

$$MPC = (1 - MPW)$$

The **multiplier ratio** is 1 divided by the marginal propensity to withdraw (MPW):

$$\text{Multiplier ratio} = \frac{1}{MPW} = \frac{1}{(1 - MPC)}$$

The higher the value for MPC, the higher the multiplier. This makes intuitive sens
there's more money in the circular flow model. Similarly, if more money is leaking
will be lower.

Part C: Example

1. Dave spends £9 out of every £12 that he earns and saves the rest. What is h savings to other uses of his income)?

From the question we can see that the basic ratio is $3:9$. This can be reduced to each side. In this case, we can divide both sides by 3 to give $1:3$. Dave sav he earns.

2. Convert the ratio above into fractions.

Divide each side of the ratio by the sum of both numbers (4 in this case). The equal 1.

$\frac{1}{4} = 0.25$

$$\frac{3}{4} = 0.75$$

Therefo the ratio is $0.25:0.75$

From this we could just say that Dave's savings ratio is 0.25 because it is imp $1 - 0.25 = 0.75$. This is equivalent to the spending ratio in this case as we are income is used for either saving or spending (in reality there would be other

3. Convert Dave's spending ratio to a percentage.

Simply multiply the decimal value by 100:

$$0.75 \times 100 = 75\%$$

4. Imagine that Dave earns an annual salary of £25,000. How much of this wo

Dave spends 75% of his salary.

75% of £25,000 is £18,750:

$$\left(\frac{25\,000}{100}\right) \times 75 = 18\,750$$

Note that in order to convert this into a monthly amount you must divide it b per month). It's important to read the question carefully in case the informa forms. And always remember the unit: if you mis the £ sign off your answer

$$\frac{18\,750}{12} = £1{,}562.50 \text{ per month}$$

5. The gov ent spends £1bn on a new tram system in various city centres multiplier ratio?

Here we have been given the value for marginal propensity to consume, MP divided by (1 – MPC):

$$\text{Multiplier ratio} = \frac{1}{(1 - \text{MPC})} = \frac{1}{(1 - 0.5)} = \frac{1}{(0.5)}$$

So we get a multiplier value of 2. This means that given our initial injection o a £2bn increase in national output.

Part D: Practice Activity

1. Spain has a savings ratio of 0.15. What is this in percentage terms?

2. The table below shows some examples of savings ratios from three different

Country	Savings Ratio	
	2010	
France	0.2	
United Kingdom	0.1	
Switzerland	0.39	

Source: ht

Assume the average person in each country earns £30,000 a year in 2010 an

a) How much of their income would the average person in the UK have sa

b) How much more would the average worker from Switzerland save comp from France in both 2010 **and** 2011 together? Show your working.

SKILL 2: CALCULATE, USE AND UNDERSTAND PERCENTAGES AN

Part A: Specification Overview

Understanding percentages and percentage changes is necessary throughout the
Growth in GDP figures, unemployment rates and so on will often be mentioned ir
students should be comfortable interpreting them. Understanding percentage ch
calculations (such as elasticities, found later in this document). Note that althoug
specified the need to understand percentage *point* changes, we have included thi
percentages overall.

Part B: Theoretical Overview

The term 'percent' comes from Latin [illegible] 'for each hundred'. We have alre
when talking about ratios bec[illegible] the idea is similar.

A percentag[illegible]es[illegible] the proportion of one value with respect to another. By c
makes it mu[illegible]er to compare values. We could say that 4 out of 20 people do
5 out of 30 people are unemployed in Town B. Stated like this it is tricky to compa
not immediately obvious which town has a higher unemployment rate. It's much
numbers into percentage terms.

To convert, divide one side of the ratio by the other and then multiply it by 100.

Town A: $\left(\frac{4}{20}\right) \times 100 = 20\%$

Town B: $\left(\frac{5}{30}\right) \times 100 = 16.7\%$

Now it becomes clear that the unemployment rate is higher in Town A.

In Economics we are often concerned with how variables are affected by other fa
increases its spending does the employment rate rise? If the pound depreciates d
as other countries find it cheaper to buy our goods?

To consider these sorts of things it's often useful to look at percentage *change* in

To work out the percentage change, use the following formula:

$$\text{Percentage change} = \frac{(\text{new value} - \text{old value})}{\text{old value}} \times 1$$

For example, a firm expands and increases its emp[illegible]ee[illegible]om 1,500 to 1,800. Th
calculated like this:

$$\text{P[illegible]centage increase} = \frac{(1800 - 1500)}{1500} \times 100 = 2$$

Note that an [illegible]se of 100% means that the initial value has doubled (and is no

You should be aware of percentages of percentages: If the central bank raises int
this is an increase of *one percentage point* but interest rates have **not** increased 1
percentage change above:

$$\%\text{ increase in interest rates} = \frac{(6\% - 5\%)}{5\%} \times 100 =$$

The rate has risen by one percentage point *but this means interest rates have inc*

Part C: Example

1. **Suppose the GDP of Germany is £4.5 trillion. Agriculture contributes £0.135 this figure. What percentage of the total is this?**

$$\frac{0.135}{4.5} \times 100 = 3\%$$

2. **Germany's total GDP figure rose by 4% over the course of a year. What was the year?**

$$4.5 + \left(\left(\frac{4.0}{100} \right) \times 4.5 \right) = £4.68 \text{ trillion}$$

3. **The following year, the GDP [illegible] higher, going from 4% to 5%. What *rates* does this repr[illegible]**

$$\% \text{ change} = \frac{(5 - 4)}{4} \times 100 = 25\%$$

Part D: Practice Activity

1. Suppose that a firm has 890 workers, of which 340 have a degree. What perc to university? Give your answer to two decimal places.

2. In the UK, 1 in 7 16–24 year olds are considered unemployed. What is the pe *unemployment*? Give your answer to two decimal places.

3. The total number of unemployed 16–24-year-olds rises from 498,000 to 520, this? Show your working.

4. Below is a table showing unemployment rates in the UK and in Spain in 2008

	Unemployment rate %	
	2008	2012
UK	5.1	8.2
Spain	9	23.2

Source: Eurostat

a) How many percentage points higher was unemployment in Spain in 200 in the same year?

b) Unemployment rates in the UK decreased from 8.2% in 2012 to 6.9% in **decrease** in unemployment rates does this represent?

Exam tip: Make sure you include the percentage sign (%) in your answe given to two decimal places to ensure you get all the available marks.

SKILL 3: UNDERSTAND AND USE THE TERMS ME

Part A: Specification Overview

An understanding of statistical measures such as mean and median are required a
necessary to understand the different calculation methods and why mean and me
interpreted differently.

Part B: Theoretical Overview

The most common type of 'average' is the arithmetic mean, or just mean, of a set
series is found by dividing the total sum of all the valu[illegible] the number of values

In Economics it is sometimes more ap[illegible]or a re to use the median rather than the
seeks to find the 'middle valu[illegible] the data set.

The two me[illegible]ar[illegible]elatively simple and you would have covered them in GCS
then – so let[illegible]e on to some example calculations.

Part C: Example

Usually 'average' refers to the arithmetic mean, or just mean, of a set of values. T
found by dividing the total sum of all the values by the number of values in the se

For example, consider the following series of numbers:

3 3 6 3 7 8 11 12

There are 10 values and the total value of these is $(3+3+6+3+7+8+11+12+1$
The mean value, therefore, is: $\frac{74}{10} = 7.4$

In order to find the median value we use a different process. First we have to put
to largest):

3 3 3 5 6 | 7 8 11

We then select the middle value. In a series of nine numbers the middle would be
values either side of it).

In our example we have 10 values. The median val[illegible]th[illegible]efo[illegible]e, lies *halfway* betw
number (indicated with the dashed line). He[illegible]th[illegible]6.5. Getting a decimal value
don't be tempted to round it up.

So from the s[illegible]se[illegible]bers we have calculated a mean value of 7.4 and a m

Arriving at di[illegible]rent values for the mean and median from the same data set is co
the two averages is often important in Economics. Let's illustrate this with an exa

Imagine you live in a small village with 100 people who all earn £10,000 a year. Th
wage are both £10,000.

Now imagine that a very wealthy businessman moves in with an annual income o
middle income, remains £10,000. However, the addition of one person causes the
to £19,802. Which value is most representative of the population?

Part D: Practice Activity

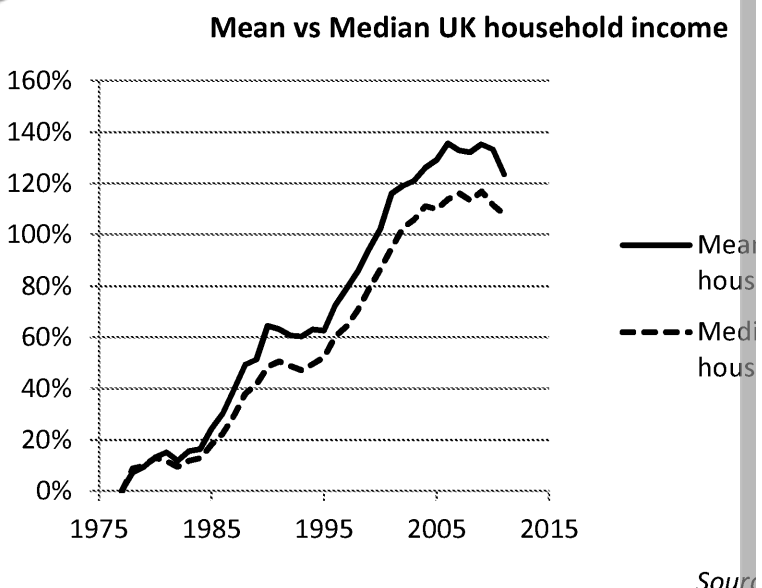
7 7 8 8 9 10 12 12 13 15 18

1. The numbers above are hourly wages for the employees in a small firm.
- **a)** What is the mean wage? Show your working.
- **b)** What is the median wage? Show how you arrive at your answer.

Suppose that the government is considering introducing a new law to limit the pa
receive. The boss of this company (whose wage is not in the list above) will have
average wage.

2. Would he prefer the average used to be the mean or median wage? Please c
be in each case.

3. If the aim of the government was to reduce inequality which option would b



Sourc

4. Above is a chart showing the change in mean disposable income and median
since 1977. What can you interpret from the graph?

SKILL 4: UNDERSTAND AND USE RELEVANT Q

Part A: Specification Overview

Data may be presented in quantiles – likely quartile or quintile form –in questions
to interpret them accordingly.

Part B: Theoretical Overview

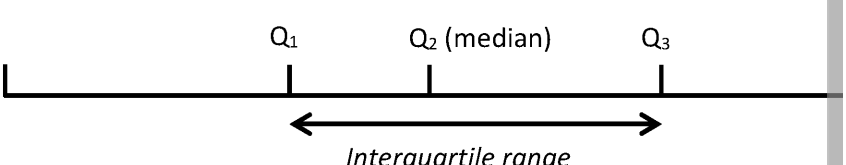
The use of quantiles is a common way of presenting data in Economics. They are
groups which allows us to make comparisons between di rent sections of a pop

The most common type of *quan*tile is a *qua* e. Think 'quarter' – a quartile splits
can link the information we ha ust earned in **Skill 3** about median values. Just
values we place the dat in order from lowest to highest. The median value lies in
bottom two les om the top two quartiles.

Similarly, the median of the lowest half of the dataset only will separate the bott
of the top half of the data separates the top two quartiles. Note that if the split fa
we take the middle value between the two (their mean).

By splitting data into quartiles we can see how groups of data are distributed, an
different groups. A common application in Economics is household income data:
four groups allows us to make comparisons between the top and the bottom ear

The *interquartile range* is another idea that you need to understand. The interqua
difference in data between Q_1 and Q_3. This ignores any extreme values. For exam
there will be those who earn a very small wage (perhaps living off savings) at the
high salaries at the top. By just looking at the interquartile range we ignore these
representative picture of the population.



While quartiles are probably the most com ty e of quantile you may also see
data into five different groups. Pe t split it into 100 (e.g. 'the top percentile
who have 99% of the pop re ning less than them). For each different type
splits in the d wh presents the number of subgroups. So quartiles have
split into pe s will have 99 splits.

Part C: Example

15	5	17	11	12	11	15
1	16	18	16	3	10	3

Here is a random series of 20 values. To separate them into quartiles we first hav

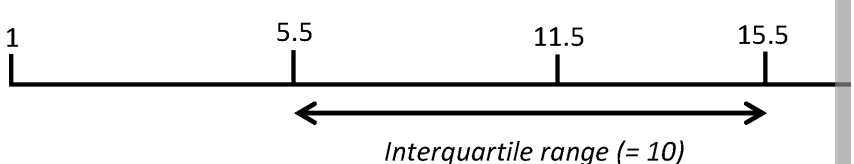
1	2	3	3	5	6	7
12	13	14	15	15	16	16

It's now straightforward to divide the group into quartiles. In this case, the data is half and top half, so the median is between 11 and 12 – that is, 11.5.

If you draw a line down the middle of these two lies then you will split Q1 from Q2 o from Q4 on the bottom ro

	1	2	3	3
Q2	6	7	10	11
Q3	12	13	14	15
Q4	16	16	17	17

This is how we can present the data visually:



Interquartile range (= 10)

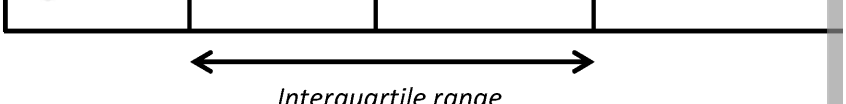
Part D: Practice Activity

40	22	41	37	37	35	20
47	23	37	24	45	25	39

1. Sort the numbers above into four quartiles.

2. What is the median value?

3. What is the interquartile ran



Interquartile range

4. What can you interpret from this diagram of quartiles? Think about the distr been separated into quartiles.

SKILL 5: CONSTRUCT AND INTERPRET A RANGE OF STANDA

Part A: Specification Overview

The need to construct and interpret graphical forms applies across the syllabus. T
straight line graph. Most students will understand the theory from GCSE Maths b
discussing gradients, shifts and rotations. This knowledge will help students unde
as AS/AD schedules which will likely feature in their exams at both AS and A Leve

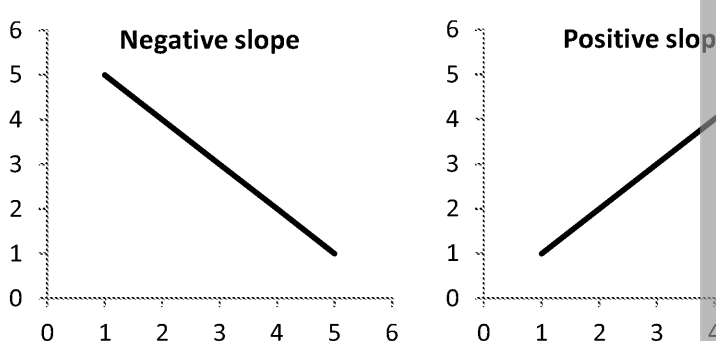
Part B: Theoretical Overview

Graphs are important in Economics because w o ten ok at the relationship bet
tell us quickly and clearly how one ch ges th the other. Most students will hav
Maths but it's worth reviewin em

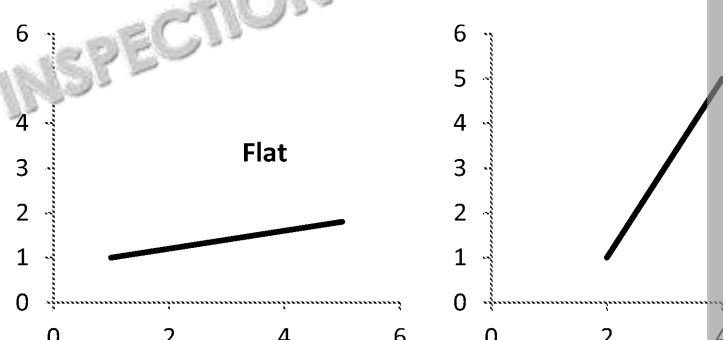
The most in t spect of a basic line graph is the gradient of the line: is it po

$$\text{Gradient} = \frac{\text{Change in Y}}{\text{Change in X}}$$

An upward-sloping line has a positive gradient, e.g. a supply curve. As one variabl
A downward-sloping line has a negative gradient, e.g. a demand curve.



The magnitude of the gradient is also important and tells us how *much* one variab
flatter line – whether positive or negative – tells us that a small change in the *Y* (v
proportionally larger change in the *X* (horizontal axis) vari . An upwardly steep
a proportionally higher change in the Y variable c mp re with the X variable.

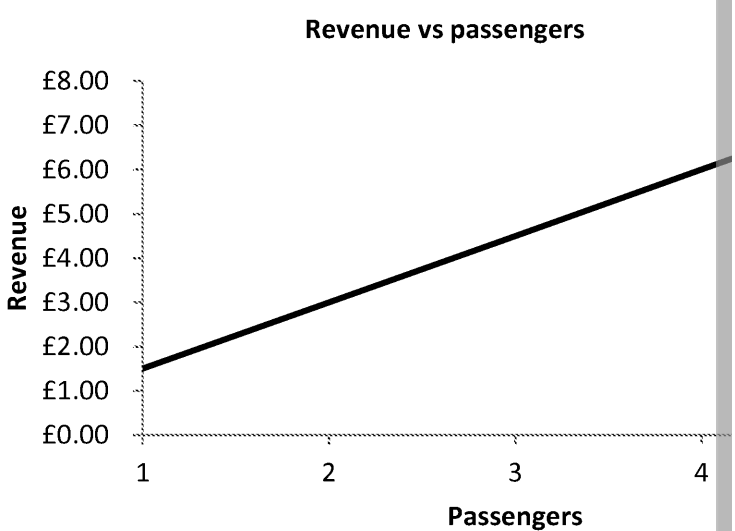


Part C: Example

Let's start with a very basic example. Below is a chart showing the number of pas
amount of revenue it receives. In this case, tickets are £1.50 each.

Passengers	Revenue
1	£1.50
2	£3.00
3	£4.50
4	£6.00
5	£7.50

Graphically, we can pr nis information as follows:

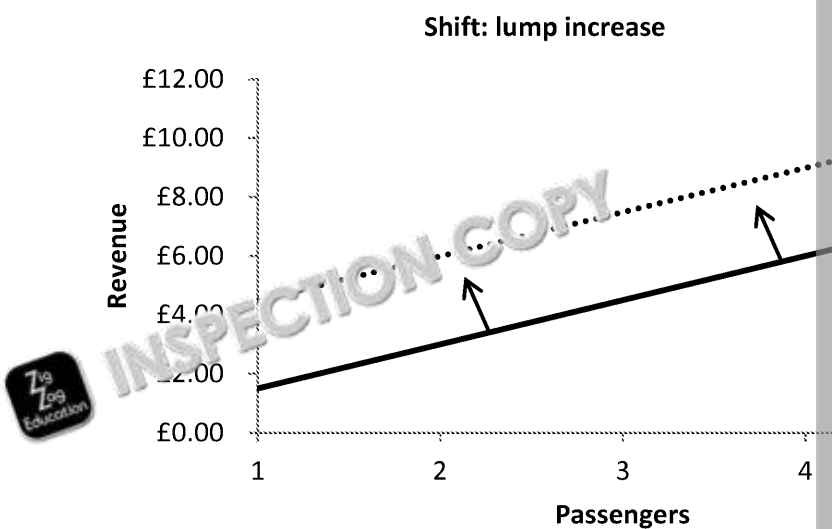


The line is upward sloping: there is a positive relationship between the number o
that the bus receives. Indeed, we can calculate the gradient of the line. Let's take
from £3 and two passengers to £6 and four passengers.

$$\text{Gradient} = \frac{\text{Change in Y}}{\text{Change in X}} = \frac{6 - 3}{4 - 2} = \frac{3}{2}$$

Hence, the gradient here is 3/2 o means the relationship between reve

The gradient tells us how the different values change as we move *along* the line. (what happens when events, or 'shocks', alter the position of the line itself. The m encounter is a **shift**. This is when the line moves up or down but *the gradient rem* example. Here, the price of each bus ticket has increased by £3.

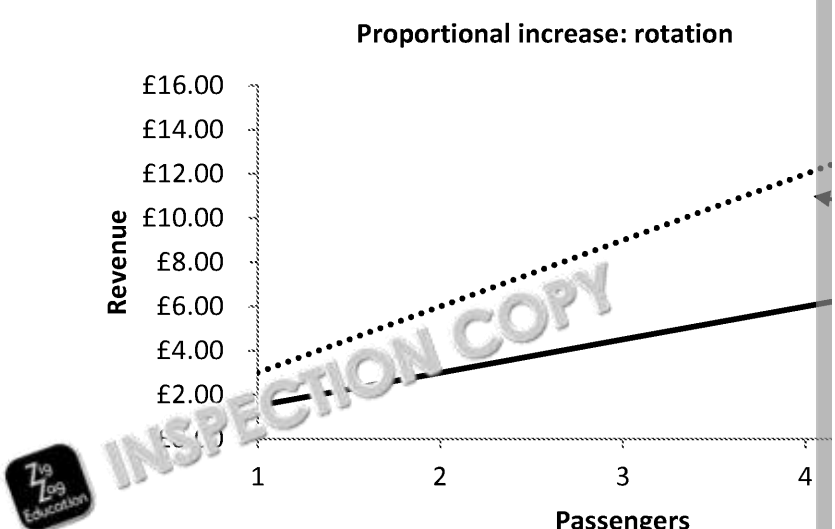


Let's look at the gradient again between 2 and 4 passengers:

$$\text{Gradient} = \frac{\text{Change in Y}}{\text{Change in X}} = \frac{9 - 6}{4 - 2} = \frac{3}{2}$$

So the line has moved – but the gradient is still 3/2.

Now let's consider a different change: a rotation. This occurs if each value change the price of a bus ticket doubles.



$$\text{Gradient} = \frac{\text{Change in Y}}{\text{Change in X}} = \frac{12 - 6}{4 - 2} = \frac{6}{2} = \frac{3}{1}$$

So now the gradient is 3/1, or 3. A steeper gradient has a larger value (3 > 1.5)

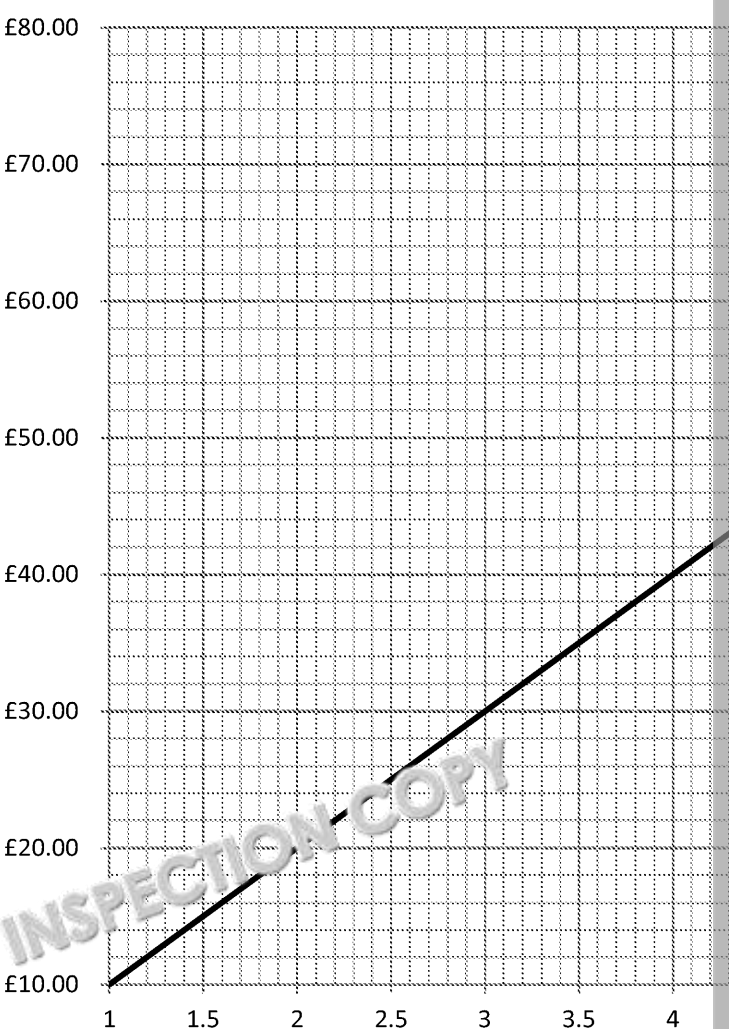
Often you will see combinations of the two changes: a shock might cause both a s

Part D: Practice Activity

1. Fill in the table below by **first** increasing revenue by 50%, **then** adding £2 to e
'Revenue$_2$' column.

Passengers	Revenue	1. 50% increase	2. Pl
1	10	**15**	1
2	20		
3	30		
4	40		
5	50		

2. Now us new values to draw a new line showing Revenue$_2$ on the chart



3. What is the gradient of the new line? Is this a shift or a rotation?

SKILL 6: CALCULATE AND INTERPRET INDEX N

Part A: Specification Overview

Index numbers are mainly used in the specification to examine changes in the pri
able to understand and interpret numbers presented in index form at both AS an
to be able to calculate the rate of inflation using index numbers at AS. This includ
how weights are used when constructing the baskets of goods. In-depth technica
indices (arithmetic vs geometric means, for example) is not required.

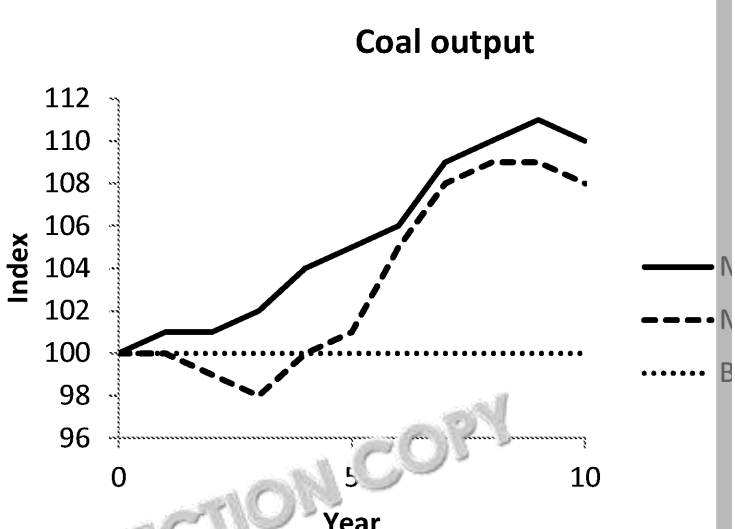
Part B: Theoretical Overview

In this section we will use a lot of the skills covered in **Skill 2** so refer back if you h
percentages and percentage change.

Economists use index numbers to make comparisons over time. The key idea is th
can be compared back to an initial 'base'. The base is always shown with an index
then following data points are adjusted to this value.

Imagine we have yearly data on the output of a coal mine. An index of 105 in yea
was extracted in that year. Index numbers can be below 100 if the value has decr
compared to the base year then the index will be 98. Index numbers do not have
when referring to output in this example, and don't use a percentage sign.

Before we talk about how to calculate index numbers it is useful to think about a
see a line graph showing the output of two imaginary coal mines in index form:



First note ho output of each mine starts at 100 at year 0, the base year. This
had the same output in year 0. Rather, it just shows 100% of their respective star
with the subsequent changes for each output over time, relative to this starting p

We can see that the output for Mine 1 generally increases over time. In year 4 it h
that its output has increased 4% relative to the base year.

The output for Mine 2, however, decreases relative to the base year between yea
year 3 tells us that output has decreased 2% compared to the base year.

You may not have come across index numbers of less than 100. The most commo
in the A Level Economics is to show changes in price levels, and generally price le
(inflation).

The difference between arithmetic and geometric means is **not** necessary to kno
interest for those of you who like understanding the maths. The arithmetic mean
covered in **Skill 3** (summing the total of the values then dividing by the number o
geometric mean is calculated by calculating the product of a set of *n* values (mult
dividing them by their n^{th} root. If we have just three values, for example, we multi
arithmetic mean is the cube root of the product. Generall[illegible] arithmetic mean w
geometric mean.

Calculating index numbers may b[illegible]da[illegible]ng at first but each step is relatively sim
number of calculations [illegible]d you might end up punching a lot of numbers int
there is high[illegible]er[illegible]n for an error to creep in. Try to record each step as clearly
mistake and [illegible]o retrace your steps.

Part C: Example

Let's start by looking at an example of the type of index number you are most like
Price Index (CPI). The idea of the CPI is to track price changes for a selection, or 'b
which best represents the spending habits of the population as a whole. The item
year to reflect the introduction of new products and the fading in popularity of ot
music streaming services were included for the first time, while yoghurt drinks ha
were discarded).

There are over 700 goods and services included in the basket which includes item
insurance and dry cleaning. Each item is assigned a weight which best represents
example, is assigned a much higher weight than light bulbs. Each weight can be c
percentage of total spending: the total sum of weights equals 1 (or 100%).

Below is a table showing a simplified example of a price level index. Only four goo

	Goods in the basket			Price
	Good	Price	Weight	
2010	Good A	**£10**	0.25	£5
	Good B	**£5.50**	0.15	
	Good C	**£2**	0.2	
	Good D	**£4.50**	0.4	
2011	Good A	**£10.40**	0.25	£5
	Good B	**£5.50**	0.15	
	Good C	**£2.20**	0.2	
	Good D	**£5.10**	0.4	
2012	Good A	**£10.60**	0.25	£6
	Good B	**£5.70**	0.15	
	Good C	**£2.30**	0.2	
	Good D	**£6.00**	0.4	
2013	Good A	**£11.10**	0.25	£6
	Good B	**£6.00**	0.15	
	Good C	**£2.50**	0.2	
	Good D	**£6.00**	0.4	

This is a large table with lots of values but it needn't be daunting. Each step is sim
price value for each year. Multiply the price of each good by its weighting and ad
the base year, we get:

$$\text{Price Value}_{2010} = (10.0 \times 0.25) + (5.5 \times 0.15) + (2.0 \times 0.2) + (4$$

This is an easy calculation but quite lengthy. Make sure you get all the brackets ri
calculator (it may be easier to write down the answer for each step and then add
If your answer is higher than the highest price, or lower than the lowest, then you
need to retrace your steps.

The price values for the other years are calculated in the same way:

$$\text{Price Value}_{2011} = (10.4 \times 0.25) + (5.5 \times 0.15) + (2.2 \times 0.2) + (5.1 \times 0.4)$$

$$\text{Price Value}_{2012} = (10.6 \times 0.25) + (5.7 \times 0.15) + (2.3 \times 0.2) + (6.0 \times 0.4)$$

$$\text{Price Value}_{2013} = (11.1 \times 0.25) + (6.0 \times 0.15) + (2.5 \times 0.2) + (6.0 \times 0.4)$$

We can now calculate our index values. Remember, the first year is always assign
need to calculate it for 2010: just write in '100'.

The indices for other years are calculated like this:

$$\text{Index for year X} = \left(\frac{\text{Price Value of Year X}}{\text{Price Value of Base Year}}\right) \times 1$$

Hence:

$$\text{Index}_{2011} = \frac{5.91}{5.53} \times 100 = 107$$

$$\text{Index}_{2012} = \frac{6.37}{5.53} \times 100 = 115$$

$$\text{Index}_{2013} = \frac{6.58}{5.53} \times 100 = 119$$

Note that each price value is divided by the price value for the base year rather th
preceding year.

Part D: Practice Activity

1. Fill in the table below. Show as much of your working as possible.

Year	Goods in the basket			Price
	Good	Price	Weight	
2013	Good X	£5.50	0.5	£3
	Good Y	£0.50	0.1	
	Good Z	£1.20	0.4	
2014	Good X	£5.40	0.5	
	Good Y	£0.50	0.1	
	Good Z	£2.20	0.4	
2015	Good X	£5.60	0.5	
	Good Y	£0.80	0.1	
	Good Z	£5.50	0.4	

2. Suppose that the Office for National Statistics (ONS) decides to adjust the we
basket. Why would they do this?

3. In 2014, Good X had its weight increased to 0.7 and Good Z had its weight de
price level and index now be for that year, 2014? The price value for 2013 re
your working.

4. In question 3, the price of Good X decreases in 2014 – but the index goes *up*.

SKILL 7: CALCULATE COST, REVENUE AND PROFIT (A

Part A: Specification Overview

Students should be able to perform a variety of cost and revenue calculations and
variable and average costs at both AS and A Level.

Part B: Theoretical Overview

Many of the calculations required for Economics A Level can be grouped under th
is not particularly complicated – in general it's basic addition, subtraction, multipl
are lots of formulas required, and subtle differences in terms, so it's worth devoti
the required knowledge. Mastering these will guarantee you some relatively

The theory of the firm simply the accounting behind a firm's output decisions
output (Q) and revenue (R). These can often be expressed in terms of average or

The firm's revenue is the number of goods it sells multiplied by the price of each g
£5 each then it takes £50 in (total) revenue.

$$TR = Q \times P$$

Each good costs the firm money to produce. To calculate profit we subtract the to
the revenue.

$$\Pi = (Q \times P) - TC = TR - TC$$

The cost to produce items will change. Usually, the more goods a firm produces th
on average due to *economies of scale*. Firms tend to get more efficient as product
to look at the *average* cost of producing each unit of goods. The average cost is th
quantity of goods produced:

$$AC = \frac{TC}{Q}$$

Sometimes it is useful to separate the costs into *fixed* costs and *variable* costs. Fix
regardless of production. Variable costs change depending on the output. Fixed c
machinery (regardless of how much you produce these will stay the same). Variab
wages and raw materials (if you produce more you will have to pay your workers
create the goods).

Accordingly you can say that

$$\text{Total cost} = \text{Fixed costs} + \text{Variable costs}$$

You can calculate average fixed costs, AFC, and average variable costs, AVC by div
Hence, total average costs, AC, is:

$$AC = AFC + AVC$$

Note that sometimes the line between fixed and variable costs can be blurred. So
variable goods'. That is, goods that have an element of both fixed and variable. A
work mobile phone bill. He or she probably pays a contract of a fixed amount eac
amount dependent on how many calls he or she makes. Semi-variable goods like

Recall **Skill 3**: means and medians. We use the arithmetic mean to work out the a
total revenue by quantity:

$$AR = \frac{TR}{Q} = \frac{P \times Q}{Q} = P$$

Hence, the average revenue is the price, which makes intuitive sense – but note t
assumptions such as constant price for all sales volumes, and the firm only produ

Part C: Example

Output (units)	Total Cost (£)
1	5.50
2	10.00
3	14.00
4	16.00
5	17.00

1. The firm produces 3 units of output. What is the average cost?

Recall that:

$$AC = \frac{TC}{Q}$$

Hence:

$$AC = \frac{14}{3} = £4.67$$

2. If the firm increases its output to 5 units does the average cost change?

$$AC = \frac{17}{5} = £3.40$$

So the average cost of producing a unit falls consi[illegible]ly when more units a
firm benefits from economies of scale.

3. The average fixed cost [illegible] producing 5 units is £2.00. What is the averag

$$AC = AFC + AVC$$

So:

$$AVC = AC - AFC$$

$$AVC = £3.40 - £2.00 = £1.40$$

Part D: Practice Activity

1. A firm records total revenue of £2,000 from selling 40 units. What price were

Output (units)	Total Cost (£)
1	5.50
2	10.00
3	14.00
4	16.00
5	17.00

2. **a)** Look at the table above. What is the average cost of 5 units of output?
b) When the firm is producing 5 units of output, the average fixed cost is £ variable cost?
c) The firm sells 5 units for a total of £20. What is its total revenue? What
d) What is the average revenue when 5 units are sold for £20?

3. **a)** A firm produces 100 units at an average cost of £10. Average fixed costs variable costs?
b) Following an increase in raw material prices, the average variable cost i new total average cost?

SKILL 8: CALCULATE COST, REVENUE AND PROFIT

Part A: Specification Overview

Students should understand the general idea of 'the margin' at both AS and A Lev
separated out from the previous section on average costs and revenue to allow fo
Level part of the course requires more knowledge of the idea than at AS. For exar
are needed. Marginal revenue is introduced at A Level, alongside a specific sectio
'the concept of the margin'.

Part B: Theoretical Overview

The idea of 'the margin' was a big deal when it wa s fi t presented by economists
and the so-called Marginal Revolution h an t g he entire discipline. Unfortunate
is – it made the subject much m e m thematical as well. However, the basic con
difficult, and there is n t x plicated calculus needed at A Level.

The 'margin' r to the idea of *one additional unit*. How does the total cost cha
unit? What about total revenue?

Let's start with marginal cost. This is the increase in costs that results from the pr
Consider the formula below:

$$\text{Marginal cost} = \text{MC} = \frac{\text{Change in total cost}}{\text{Change in output}} = \frac{\Delta T}{\Delta}$$

If ΔQ = 1 that indicates that one extra unit has been produced and we can look at
Note that marginal costs are not affected by changes in fixed costs. If it costs £10
produce 6 units then the marginal cost of producing that extra unit is £2.

Marginal revenue uses the same idea but applies it to revenue. How does total re
one more unit of output?

$$\text{Marginal revenue} = \text{MR} = \frac{\text{Change in total revenue}}{\text{Change in output sold}} =$$

Imagine a firm sells 50 units and total revenue is £100. The firm sells 51 units and
marginal revenue, therefore, is £2.

We can use these ideas to think about **pr fit x. sation.**

If a firm can make profit b p ing another unit of output then it will carry on
loss on the fi w t de to fixed costs). If the production of an additional un
does not cau ss) then the firm will still produce the unit. This is the idea of n
covers costs (including paying business owners for their entrepreneurial efforts) b

Therefore, the golden rule is that **<u>firms maximise profits at MC = MR</u>**. Firms will p
marginal cost of that unit does not exceed the marginal revenue. That is, the extr
of producing the good.

Part C: Example

Units of Output	Total Cost
0	15
1	25
2	34
3	42
4	48
5	59

Let's look at this table of a firm's output and total cost. First, notice that there is a c
of output being produced. This is the fixed cost which does not depend on output.

Imagine now we want to know the marginal cost of producing the third unit of
cost of producing just that one extra unit. In this case, the cost increases from 34 to

For this to be the profit-maximising level of output, the marginal revenue from se

Part D: Practice Activity

1. Fill in the table below by calculating the marginal cost of producing each extr

Units of output	Total Cost	Marginal Cost
0	11	
1	21	
2	30	
3	38	
4	44	
5	55	

2. **a)** Fill in the blanks in the table below. Show your working where possible.

Output	Total Revenue	MR	Total Cost	
1	100		70	
2	200		140	
3	300		200	
4	400		300	
5	500		510	

b) How many units would the firm produce to maximise profits?

SKILL 9: MAKE CALCULATIONS TO CONVERT FROM MO

Part A: Specification Overview

Students should understand the difference between real and nominal values fron includes the need to calculate both real and nominal growth rates. At A level this between real and nominal wage levels, calculating real values using index numbe nominal growth figures over time. Students are not required to know how to disc appreciate that money is worth less in the future.

Part B: Theoretical Overview

Money in the future is worth less than it is now. A pound today is worth more tha its power to earn interest. A dollar in 1[illegible] dollar in 2010 would not buy the

To make meaningful comparisons between monetary values at different times we taking inflation into account.

One of the most important examples of this is real vs nominal GDP figures. Nomin adjusted at all: they are the straight value of all the goods and services produced the time of production. Real GDP, on the other hand, has been adjusted to take in measure such as CPI (see **Skill 6**). When economists discuss growth figures they a allows them to make meaningful comparisons in growth over time.

To 'deflate' a value to real terms in order to make a better comparison with a pas index of the previous period. The formula you need to use to convert nominal val

$$\frac{\text{Nominal Value}_{\text{Year X}}}{\text{CPI}_{\text{Year X}}} \times 100 = \text{Real Value}_{\text{Year X}}$$

This is best illustrated by working through an example.

Part C: Example

Let's suppose that the median hourly wage in 2011 was £9.50. This rises to a new 2012 but there was a 4% rise in price levels over the same year.

To account for this we use the price index – 104 in this case.

$$\text{Wage 2011} = \frac{£9.50}{100} \times 100 = £9.50^{1}$$

$$\text{Real wage 2012} = \frac{£10.50}{104} \times 100 = £10.10$$

This is the same as writing: $\text{Median Real Wage}_{2012} = 10.50 \times \frac{100}{104} = £10.1$

[1] *Note that 100 and 100 cancel out here but have been included for illustrative purposes.*

Here $\frac{100}{104}$ is known as the 'wage deflator'. It is used to deflate – or remove the effe
value. You may also see references to GDP deflators which is exactly the same co

If you see 'at constant prices' written in a question then you know that the values
something else – have already been adjusted and you are looking at real changes

Finally, you may also have to convert from one currency to another. This is simple
into real terms. The formula is:

$$\text{Value}_{\text{Currency X}} = \frac{\text{Value}_{\text{Currency Y}}}{\text{Exchange Rate}_{\text{X to Y}}}$$

Imagine that the median wage in the US is $8.60 and that £1 = $1.60. To convert
divide it by the pound-to-dollar exchange rate, 1.60:

$$\text{Wage}_{£} = \frac{8.60}{1.60} = £5.38$$

Part D: Practice Activity

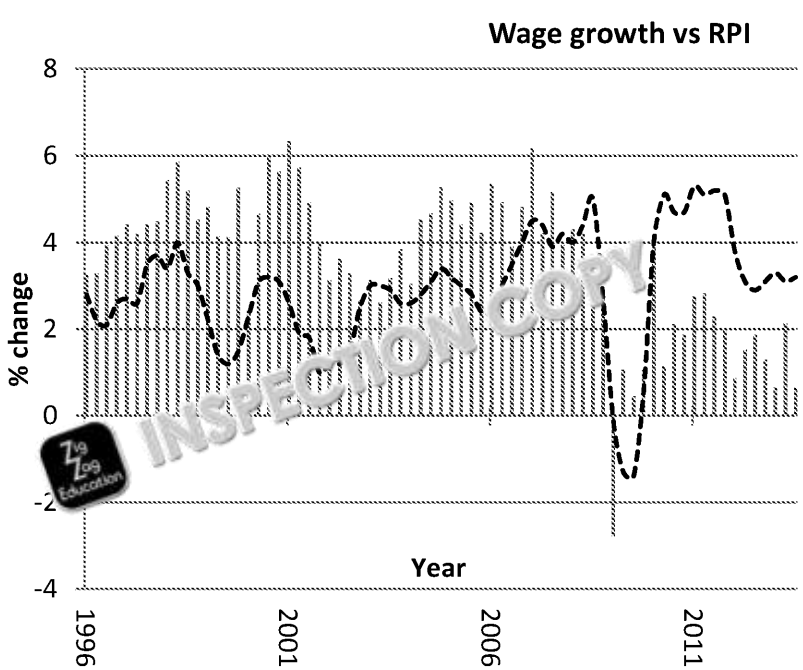
1. **a)** The nominal GDP of Spain rises from $1,010bn in 2013 to $1,110bn in 2
increase is this in nominal terms?

b) The price index for 2014 with respect to 2013 is 103. What was the new

c) What was the percentage increase in *real* GDP?

2. The pound to dollar exchange rate is 1.57. What is $1,110bn in pounds?

3. What can you interpret from the graph below?



Sour

SKILL 10: MAKE CALCULATIONS OF ELASTICITY AND INT

Part A: Specification Overview

Calculating and interpreting elasticities is important at both AS and A Level. Stude
calculate price elasticity of demand, income elasticity of demand and cross price
to interpret the numerical values. Students are also required to be able to calcula
and interpret the values.

Part B: Theoretical Overview

Elasticity measures how responsive one variable is to a change in another variable
beer react if the price increases? How do the breweries vary their supply? How do
of wine falls? What if people earn more?

The calculations for elasticity are perhaps the most tricky you will encounter at A
daunted. It's all calculations of percentage change again and simple division. The
underlying intuition – and practise doing the sums.

The general equation for elasticity is:

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

That is, elasticity is the percentage change in the quantity divided by the percenta
the change in quantity *demanded* (by consumers) or *supplied* (by firms).

Let's start with the idea of **price elasticity of demand** to illustrate these ideas. If a
small change in price brings about a disproportionately higher change in demand,
the opposite holds. A large change in price only affects a small change in demand

Recall that percentage change is calculated like this:

$$\text{Percentage change} = \left[\frac{(\text{New value - Old value})}{\text{Old value}}\right] \times$$

Then the equation for the price elasticity of demand, PED, is:

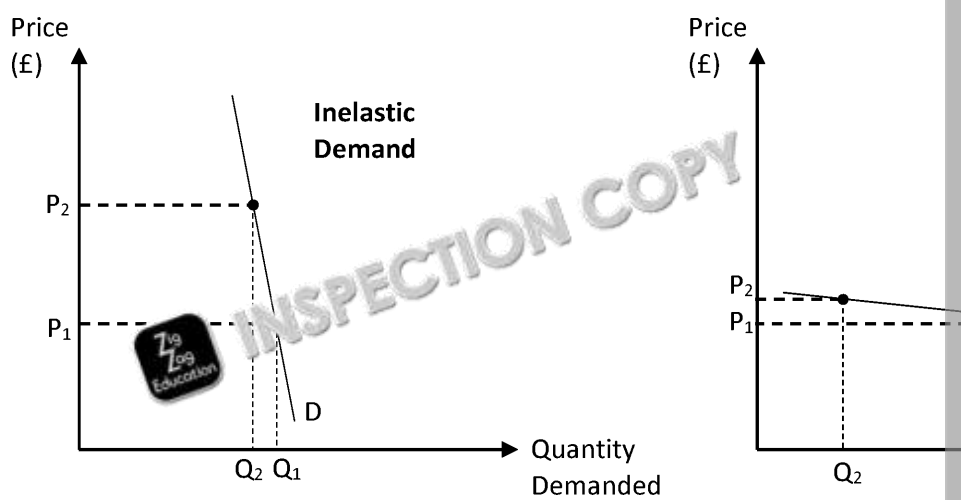
$$\text{PED} = \frac{\Delta \text{ Quantity demanded \%}}{\Delta \text{ Price \%}}$$

The symbol Δ indicates 'change in' the value.

- A PED of more than 1 indicates elastic demand
- A PED of less than 1 indicates inelastic demand
- If the PED = exactly 1, then there is unitary elasticity. This means a change i
  proportionally identical change in quantity demanded.

Note that we usually don't worry about the minus sign (-) in front of answers for
absolute value relative to 1.

It can be useful to show these ideas graphically. Below are two diagrams showing
Note how in the case of inelastic demand a large change in price (*Y*-axis) triggers
in the quantity demanded (*X*-axis). The opposite is true with elastic demand – if t
amount then the quantity demanded falls dramatically.



The idea of **income elasticity of demand** is very similar. Instead of looking at how
price, though, it looks at the effect of changes in income. Suppose Tom earns £16
tickets a season. How many more games would he go to if he earned £20,000?

The formula for income elasticity of demand, YED, is below. Note that the abbrev
'Y' ('I' is used to denote investment).

$$\text{YED} = \frac{\Delta \text{ Quantity Demanded \%}}{\Delta \text{ Income \%}}$$

- A YED value of greater than 1 indicates a luxury good.
- A YED of less than 1, but greater than zero, indicates a normal good.
- A YED value of less than 0 (negative) indicates an inferior good.

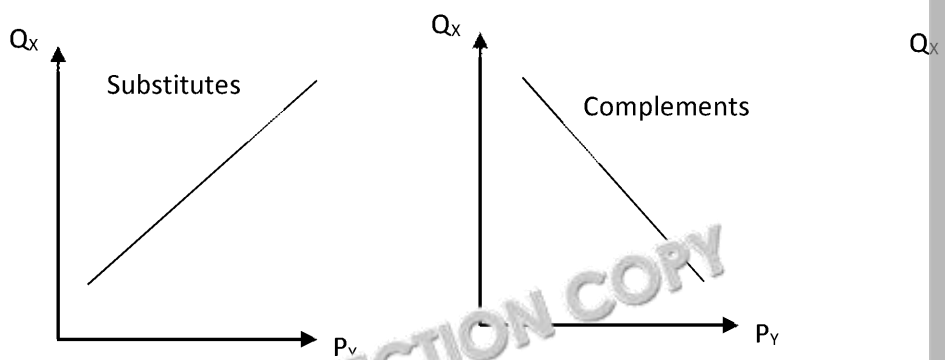
Finally, the other example of elasticity that you will come across is the **cross price**
This measures how the demand for one good changes follo ng a price change fo

$$\text{XED} = \frac{\text{Qua ity demanded Good X \%}}{\Delta \text{ Price Good Y \%}}$$

Goods can b sti omplements or completely independent.

- A positive XED value indicates that two goods are substitutes: as the price
demand for Good X increases, as people look to switch their consumption
- A negative XED value indicates that two goods are complements: as the p
demand for Good X decreases.
- A XED value of 0 indicates that the two goods are independent. A price ch
any change in demand for Good X.

It may help your understanding if you think of elasticities as gradients. A line with
downwards and a line with a positive gradient slopes upwards:



Exa n answers for elasticities the examiners are looking for answers

Finally, let's look at the idea of price elasticity of *supply*. This is the idea that it's n
their preferences following a change in price – *producers* will alter their behaviou

Hence price elasticity of supply can be defined as **how responsive quantity suppl**
formula, therefore, is as follows:

$$\text{PES} = \frac{\Delta \text{ Quantity supplied \%}}{\Delta \text{ Price \%}}$$

This formula is identical to the formula for price elasticity of demand (PED) but lo

The resulting PES values can indicate that supply is either elastic (PES > 1), inelast
responsiveness with respect to a change in price (PES = 0).

Note that PED values calculated tend to be negative (but we only look at the absc
with PES values which are positive. This is because as price increases, suppliers ar
supply moves in the same direction as price.

Part C: Example

In the previous example we mentioned Tom, who earns £16,000 and attends five
gets promoted at work and earns £4,000 more each year. He still has plenty of sp
extra money by going to seven games a season.

1. **What is Tom's YED for games?**

$$\text{YED} = \frac{\Delta \text{ Quantity demanded \%}}{\Delta \text{ Price \%}}$$

Change in quantity demanded = 40%
Change in income = 25%

$$\text{YED} = \frac{40}{25} = 1.6$$

1.6 is p ar a greater than 1 suggesting that football tickets are a luxury

Now let's think about price elasticity of demand. Demand for football tickets
support their team no matter what. Over the last decade Premier League tic
at rates above inflation but attendance figures have not decreased (think ab
don't change the team that they support). Recall the formula for PED is:

$$\text{PED} = \frac{\Delta \text{ Quantity Demanded \%}}{\Delta \text{ Price \%}}$$

We can now apply this formula in the next question.

2. **Tom's friend Sarah is a hardy football fan and goes to 16 games a season, w
her favourite team, 'Melchester FC'. Ticket prices increase from £20 to £25.
accordingly and attends 15 games a season. What is her PED for football m**

$$\Delta \text{ Quantity demanded \%} = \frac{(15 - 16)}{16} \times 100 = (-)6.$$

$$\Delta \text{ Price \%} = \frac{(25 - 20)}{20} \times 100 = 25\%$$

Hence, Sarah's PED for football matche

$$\text{PED} = \frac{6.25\%}{25\ \%} = 0.25$$

Recall that PED values of less than 1 indicate **inelastic demand**. Sarah's dem
inelastic: her demand to see games will only decrease slightly following a lar

Next, let's consider an example of a **cross price elasticity of demand** calculat
for XED is:

$$\text{XED} = \frac{\Delta \text{ Quantity demanded Good X \%}}{\Delta \text{ Price Good Y \%}}$$

3. Sticking with our football theme let's think about the sales of replica footb 'Melchester FC' they sell matching replica shirts, shorts and socks separatel of their shirts from £30 to £35. Sales of shorts decrease from 2,000 to 1,80 elasticity of demand?

$$\Delta \text{ Price shirts } \% = \frac{(35 - 30)}{30} \times 100 = 16.7\%$$

$$\Delta \text{ Quantity shorts demanded } \% = \frac{(1800 - 2000)}{2000} \times 100$$

Hence, the XED is:

$$\text{XED} = \frac{-10}{16.7} = -0.6$$

Remember that negative XED values show that goods are complements. Her shorts and shirts are (strong) complements. As the price of shirts increases, c to purchase the matching shorts. This would be expected, as when the price expected to fall. As they are often bought alongside shorts the demand for s

Finally, let's look at a question about **price elasticity of supply**. Recall that th

$$\text{PES} = \frac{\Delta \text{ Quantity supplied } \%}{\Delta \text{ Price } \%}$$

4. Hank runs a hot dog van outside the football stadium. *Hank's Hot Dogs* is i other fast food outlets which serve football fans before and after matches. they can charge a bit more for their food following a shift in demand. Acco 10%. At this new, higher price he is willing to increase his supply of hot dog 250. What is his price elasticity of supply?

First let's work out the percentage increase in Hank's supply of hot dogs.

$$\Delta \text{ Quantity hot dogs } \% = \frac{(250 - 200)}{200} \times 100 =$$

We can plug this into the PES formula along with the increase in price which

$$\text{PES} = \frac{25}{10} = 2.5$$

The valu 2.5 i s *elastic* supply. Hank changes the amount supplied amoun he increase in price.

Part D: Practice Activity

1. **a)** The amount by which railway operators can increase fares is linked to th price of a rail season ticket from Woking to London rose from £3,704 to Suppose that the number of season ticket holders fell from 15,000 to 14 elasticity of demand, showing your working.

b) Is demand for commuter rail tickets elastic or inelastic? Can you think w

c) Draw a diagram to show the PED for these season tickets graphically.

2. This question is about income elasticity of demand (YED). Jasper goes to the income increases by 7.5% and he goes to the cinema 14 times a year. What i Show your working.

3. **a)** Imagine that an oil shock causes petrol prices to rise by 20%. Electric car 360,000. What is the cross price elasticity of demand (XED)? Show your

b) Draw a quick sketch to show the relationship between the sales of electric car petrol/diesel cars.

SKILL 11: INTERPRET, APPLY AND ANALYSE INFORMA
GRAPHICAL AND NUMERICAL FORM

Part A: Specification Overview

Students must possess the skills required to analyse and interpret data presented need to critically evaluate both qualitative and quantitative evidence when asses will present data in a variety of forms and ask students to both interpret the infor apply knowledge from elsewhere in the course.

Part B: Theoretical Overview

You don't need to memorise facts and figures to get marks in your Economics exams but it will help you to be up to date with the current trends facing the economy.

You will, however, need to know how to interpret data presented in a variety of forms. This may be any combination of tables, graphs and text extracts. Often questions will require you to develop your answer from multiple sources.

In order to be confident with handling and interpreting this sort of information we recommend that you spend time reading articles with an economic content – *The Financial Times* and *The Economist* are highly recommended. These are subscription-based but you can access a certain number of articles online for free each month.

Another idea is to look at the monthly Economic Reviews published by the Office These are free and easy to find online. They contain all the latest economic figure You can even download the data yourself if you want to probe a little deeper into own graphs.

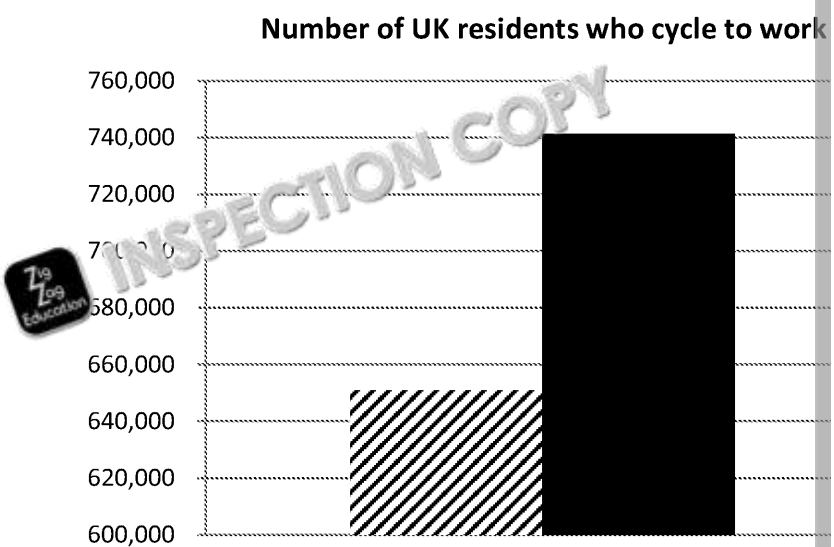
Finally, note the difference between quantitative data and qualitative data. Quan values that can be measured and recorded. Most of the data you will come acros e.g. the number of workers in the labour force, inflation figures and the money su other hand, is subjective. It looks at *qualities* that can't easily be measured. Exam interviews or focus groups used to gauge consumer confidence – for which there

Part C: Example

Let's look at an example. Below you will see information about cycling rates prese
similar to your exam: you will have an insert containing information which you ha

There is quite a lot of information on the page but step back and try to think wha
extracts make the same point?

Graph 1



Sourc

Table 1

Proportion of UK residents who cycle to work:		
2001 (%)	**2011 (%)**	**% point change 2001–2011**
2.8	2.8	0

Source: ONS

Extract 1

'The number of commuters cycling to work has risen to more than three quarters
and Wales […] as workers choose the bicycle as an affordable and healthy way to

The popularity of commuting by bike has increased by [illegible] per cent to more than 7
years, an increase of 110,000 on 200

http://www.thetimes.co.uk/tto/p

Extract 2

An increase in the proportion of the labour force that cycles to work could present
whole. These include:

- *Reduced congestion*
- *Reduced CO_2 emissions*
- *Reduced noise and air pollution*
- *Health benefits*

1. **With reference to Graph 1, Table 1 and Extract 1 discuss how commuter cy UK between 2001 and 2011.**

   At first glance, the graph appears to show a dramatic increase in cycling rate *number* of cyclists has gone up, the *proportion* of cyclists has not increased. the labour force cycled to work in 2001 and 2011. This means that either the higher proportion of the population are in employment – or a combination o

   Extract 1 seems to have missed this point and is, therefore, a bit misleading. look at the percentage or proportional change rather than any change in the

2. **Extract 1 states that 'workers choose the bicycle as an affordable […] way t rates increase by 3% as petrol prices rise by 12% following an oil shock. All is the cross price elasticity of demand? Are bicycles and cars substitutes or**

   Inform provided in a question may be just a prompt for you to apply the elsewhere in this guide. Here it is used as a straightforward application of the formula.

$$\text{XED} = \frac{\Delta \text{ Quantity demanded Good X \%}}{\Delta \text{ Price Good Y \%}} = \frac{3}{12} = 0$$

   0.25 is positive, since bikes and cars are substitutes. Note that they are relati workers will have to drive regardless of petrol prices because of the distance

3. **Why is the idea that all other things are equal, or '*ceteris paribus*', importa**

   There may be lots of other factors causing changes in demand for both bicyc prices for each may have changed. The government might have started a pro We don't know the time frame: it could be winter and fewer people cycle du

4. **With reference to Extract 2, define the term 'negative externality' and disc could reduce the effect of market failure.**

   This is another example of a question that prompts you to use your economi information presented to you.

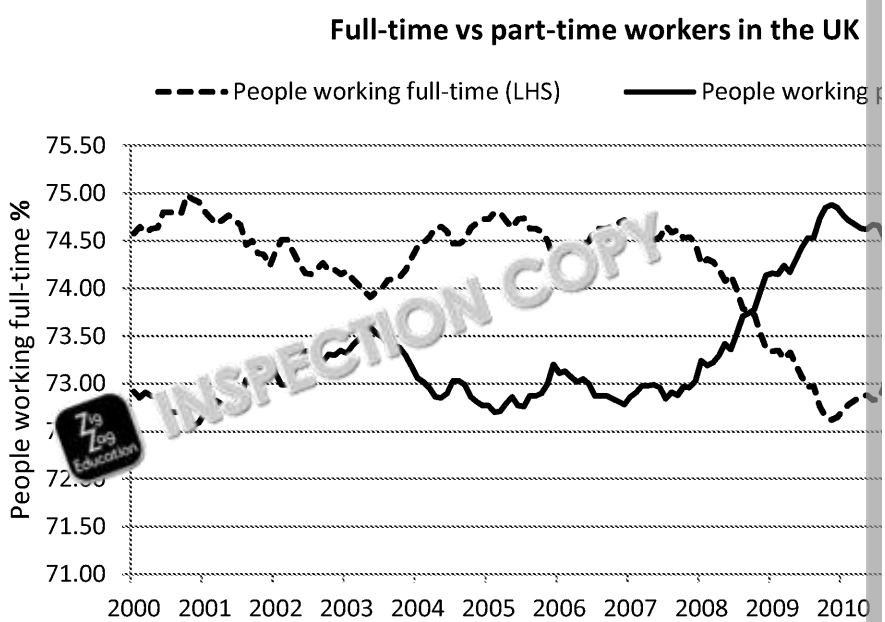
   A negative externality occurs when the decisions of producers or consumers third party.

   Extract 2 suggests that driving can cause congestion and air pollution, both o negative externalities. Higher cycling rates would reduce these and help add

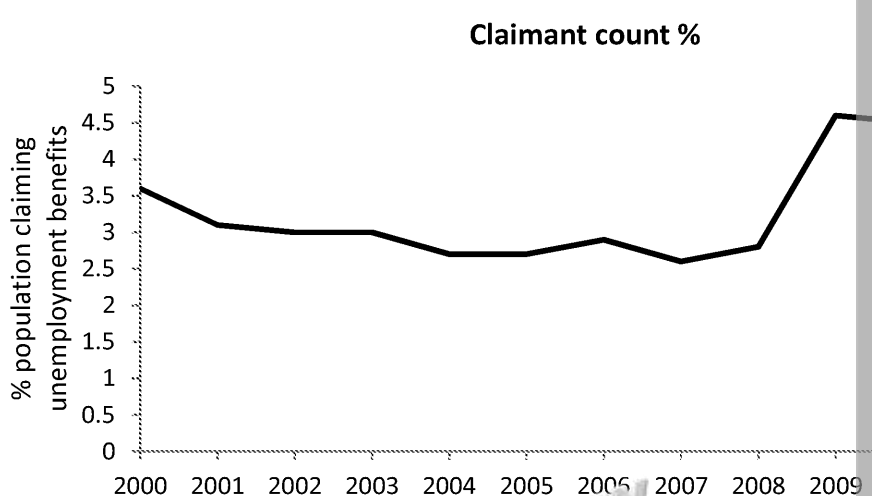
Part D: Practice Activity

Questions in this section will be based on the following information:

Graph 1



Graph 2



Extract 1

'In the six ye[illegible]nce t[illegible]global economic crisis, standard jobs were destroyed wh[illegible] continued to [illegible]se…

Non-standard workers are worse off in terms of many aspects of job quality. They [illegible] in addition, those on temporary contracts have more job strain and have less job [illegible] jobs. Earnings levels are also lower…'

http://www.theguardian.com/business/2015/may/21/temporary-and-part-time-jobs-[illegible]

Questions:

1. Describe the main trends shown in Graph 1. Pay attention to the separate *Y*-

2. One measure of unemployment is the *claimant count* which considers what claiming Jobseeker's Allowance. The claimant count between 2000 and 201 you interpret from this graph?

3. With reference to the second paragraph of Extract 1, explain how a shift to n have an impact on long-term growth, explaining your answer. Illustrate your PPF diagram.

QUANTITATIVE SKILLS ASSESSMENT ACT

Guidance

The assessment that follows is presented in a similar format to the AS level Econ much of the A Level exam content too. It has been adapted so there is a greater the numerical requirements of the course. The format used is not an exact replica only numerical content and no long written answers.

The questions in Section A are presented in multiple-choice format, each with fou the format in which many of the numerical questions are presented in both AS a

Section B has slightly longer-answer questions with a little bit more working requ specific problems that students may have when performing calculations more cle

Section C presents information in a variety of forms, similar to the questions foun students to interpret the information and apply their own economic knowle

We suggest that students complete the exam after studying the booklet and atte The exam is worth 50 marks and we recommend that students have one hour to minute for each mark and time at the end to check the completed paper.

On completion, the assessment could be marked by the class teacher, peer-asses themselves. Once the assessment has been marked students can look at their res identify areas which may benefit from further review.

Surname	
Other Names	

Supporting AS and A Level OCR

Economics

Quantitative
Targeted Skil

th aper you must have:
A calculator

Time allowed

- 1 hour

Instructions

- Use black ink or black ballpoint pen.
- Fill in the boxes at the top of this paper.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Answers written in
  not be marked.
- Do all rough work in this book. Cross through any work you do not want to

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 50 marks.

SECTION A

Questions in this section are **multiple choice**.
Answer all questions. Only **one** answer per question is allowed.
For each answer **circle** the letter alongside the appropriate answer.
If you wish to change an answer then cross out the original answer with an X.

1. John has a savings ratio of 0.14 and earns £8 per hour. How much of his ho

a) 57p
b) £6.60
c) £1.12
d) £1.78

2. The number of unemployed peo... Sandbourne rises from 34,120 to 35,... is this?

a) 4.
b) 4.4
c) 15.71%
d) 7.03%

3. Interest rates rise from 4% to 5.5%. What *percentage change* in interest ra

a) 37.5%
b) 1.50%
c) 27.27%
d) 15.00%

4. What are the mean and median values for this set of numbers?

6	4	5	7	3
21	2	1	3	12

a) Mean = 4.5, Median = 6
b) Mean = 6.4, Median = 4
c) Mean = 5.8, Median = 5
d) Mean = 6.4, Median = 4.5

5. The price value of a basket of goods in 2010, the ba... ar, is £5.30. In 201... and in 2012 it costs £5.85. What is the index ... 20...?

a) 104
b) 110
c) 111
d) 10

6. When do firms maximise profits?

a) When average costs equal average revenue.
b) When marginal revenue equals the average variable costs.
c) When marginal costs are slightly below marginal revenue.
d) When marginal costs equal marginal revenue.

7. **Incomes in an economy have risen by 5% and annual sales of musical theat 14.7 million. What is the income elasticity of demand for musical theatre ti affected demand)?**

   a) +1
   b) -1
   c) 5
   d) 0.5

8. **The price of 750 g of salt in a supermarket rises from £0.28 to £0.35. The su 2%. What is the price elasticity of demand for salt?**

   a) 0.08
   b) 0.8
   c) 12.5
   d) 0.28

9. **The exc rate of pounds to dollars is 1.60. How many pounds is $4,00**

   a) £6,400
   b) £2,500
   c) £12,500
   d) £5,600

10. **Annual wages in an economy rose from £20,000 to £25,000 from 2010 to 2 with respect to 2010 is 105. What is the percentage increase in wages in re**

    a) 19%
    b) 25%
    c) 20%
    d) 5%

11. **A supermarket has to increase the price of its orange juice following a prod costs 65p more, an increase of 35%. However, the supermarket sees a 28% What is the cross price elasticity of demand?**

    a) 0.43
    b) 1.25
    c) 0.8
    d) -1.25

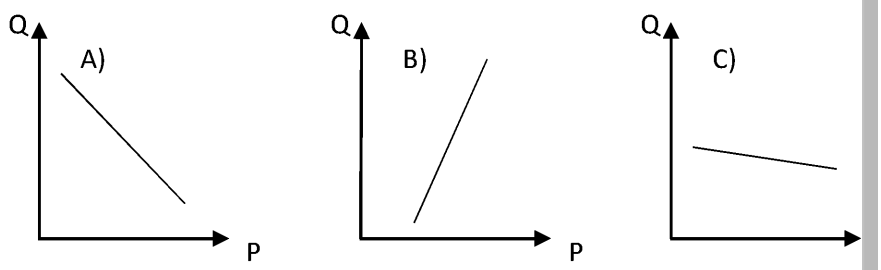
12. **Suppose 80 Polish zloty is equal to £14.2[illegible] pound-to-zloty exchange ra**

    a) 1,143
    b) 11.43
    c) 17
    d) 5.6

13. **Stephanie pays 40% of her income in tax. She saves 10%, gives 5% to charit Supposing she has an annual salary of £60,000, how much does she spend**

    a) £2,250
    b) £27,000
    c) £2,000
    d) £4,250

14. **Look at the following diagrams. Which shows the most elastic demand?**



15. **Consider the following table. What is the average cost of producing 3 units**

Output	Total Cost (£)
1	12
2	20
3	27
4	33

a) £8.25
b) £9.00
c) £7.00
d) £27.00

16. **Following an increase in prices across the whole sector, the couple running prices by 5%. They are willing to sell 60 more burritos a day at this price – u their price elasticity of supply (PES)?**

a) 0.3
b) 1.6
c) 1.1
d) 3.1

SECTION B

Family	Household Income (£)
1	16,000
2	19,000
3	23,000
4	24,000
5	25,000
6	33,000
7	35,000
8	47,000
9	55,000
10	78,000

1. The table above shows the household income for 10 families.

a) Family 1 has a savings ratio of 0.09 and Family 2 has a savings ratio of 0.2. Calculate Family 1's annual savings as a percentage of Family 2's annual savings.

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b) What is the median household income?

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c) The mean household income is £35,500. Suppose that this figure rises by £2,000. What is the new value?

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d) If the mean household income was 3 *percentage points* higher, what would the new value be?

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.....

2. **a)** Fill in the table below:

Year	Goods			Price
	Good	Price	Weight	
2010	Good A	£1.00	0.25	£2
	Good B	£2.00	0.15	
	Good C	£3.00	0.2	
	Good D	£4.00	0.4	
2011	Good A	£1.10	0.25	
	Good B	£2.[illegible]	0.15	
	Good C	£3.20	0.2	
	Good D	£4.50	0.4	
2012	Good A	£1.10	0.25	
	Good B	£2.05	0.15	
	Good C	£3.25	0.2	
	Good D	£4.45	0.4	
2013	Good A	£1.10	0.25	
	Good B	£2.00	0.15	
	Good C	£3.40	0.2	
	Good D	£4.40	0.4	

b) Which year was the most expensive to live in?

.....

3. **a)** Show that average revenue is equal to price.

.....

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b) Consider the following table showing a firm's output and the associated c
units would the firm produce to maximise revenue? Fill in the MC column

.....

Total Output	Total Revenue	MR	Total Cost
1	8	8	6
2	16	8	13
3	24	8	20
4	32	8	28
5	40	8	42

4. Historically, Japan has struggled with very low inflation – and sometimes eve

a) Imagine a Japanese firm sees its total revenue rise from 350 million yen t
2015. What percentage increase is this in nominal terms?

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b) The price index for 2015 with respect to 2014 is 1.5. What was the new
terms?

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c) What was the percentage increase in real revenue?

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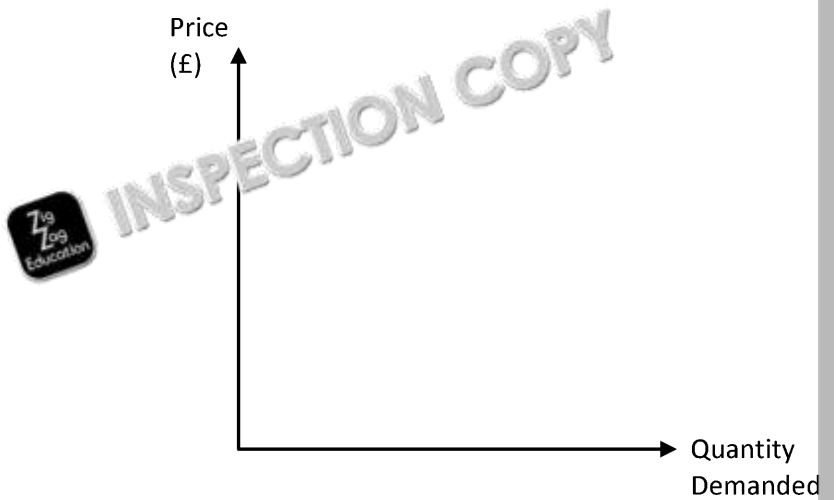
5. **a)** A fish and chip shop has to increase the price of its chips after blight affec
cone of chips rises from £1.20 to £1.40. The shop sees sales fall by 12%. V
of demand?

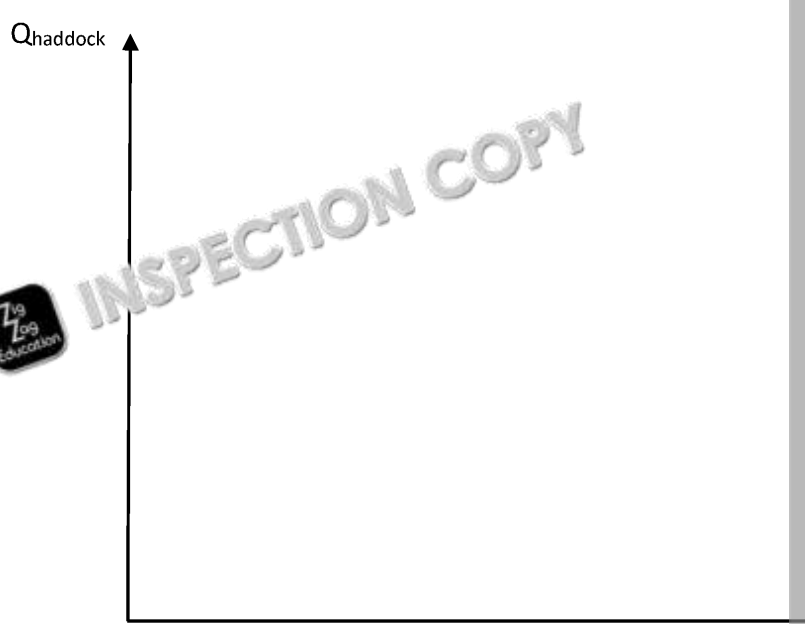
.....

b) Sketch the demand for chips with respect to price on the graph below:



The same shop sells various types of fish. Suppose that fishermen are catching m
overfishing in the 1980s. This pushes wholesale prices down and the fish and chi
15% more cheaply. However, it sees demand for battered haddock (which does

c) What is the cross price elasticity of demand for haddock with respect to c
between cod prices and demand for haddock on the chart below.



SECTION C

This section is based on the following information:

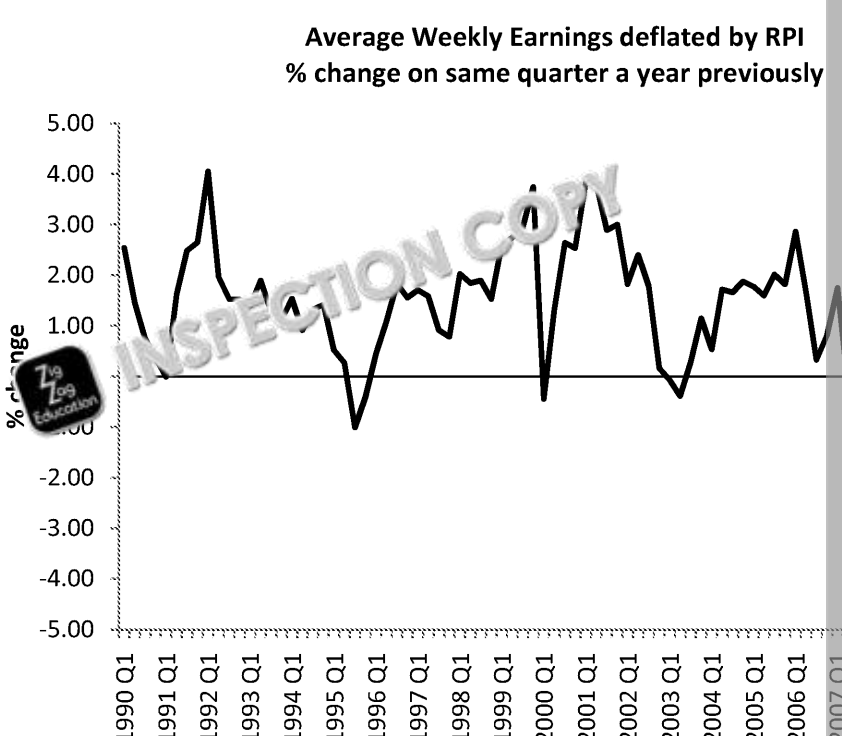
Graph 1

Extract 1

Despite challenging economic conditions the two main discount supermarkets in t share increase this year. Aldi experienced growth of over 30% which resulted in its the UK to date. It currently stands at 4.6%. Lidl also expanded successfully and no

Premium supermarkets also managed to expand with Waitrose slightly increasing main losers were the 'big four' of Tesco, Asda, Sainsbury's and Morrisons which al

Graph 2



1. Identify key features of the data in Graph 2.

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2. Extract 1 suggests that discount supermarkets have increased their market s
discuss why this might be the case.

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3. Calculate the Three-firm Concentration Ratio (the proportion of the market
firms) for supermarkets in the UK.

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SUGGESTED ANSWERS TO PRACTICE ACT

Skill 1: Ratios

1. **15%**
   ***1 mark**. Answer must include the % sign.*

2. a) 0.14 × 30,000 = **£4,200**
   ***2 marks**. Deduct **1 mark** if £ sign not included.*

   b) Switzerland: (0.39 × 30 000) + (0.34 × 30 000) = £21,900
   France: (0.2 × 30 000) + (0.21 × 30 000) = £12,300

   21,900 – 12,300 = **£9,600**
   ***3 marks**. **1 mark** for correct answer, **1 mark** for appropriate method and*

Skill 2: Percentages and percentage changes

1. 550/890 × 100 = **61.80%**
   ***2 marks**. **1 mark** for the answer and 1 mark for two decimal places and % sig*

2. 1/7 × 100 = **14.29%**
   ***2 marks**. **1 mark** for the answer and 1 mark for two decimal places and % sig*

3. [(520 000 - 498 000) / 498 000] × 100 = **4.42%**
   ***3 marks**. **1 mark** for correct approach in working, 1 mark for answer, 1 mark sign.*

4. a) 9-5.1 = **3.9**
   1 mark** for correct answer. Note that adding % sign is **incorrect.

   b) (6.9-8.2)/8.2 × 100 = **(-) 15.85%**
   ***2 marks**. **1 mark** for correct answer, 1 mark for % and two decimal place*

Skill 3: Means and medians

1. a) Mean = **12** (144/12)
   ***2 marks**. **1 mark** for correct answer, **1 mark** for working.*

   b) Median = **11** (The numbers are already ordered, the median lies betwee
   ***2 marks**. **1 mark** for the correct answer, 1 mark for an indication the stu*
   value.

2. Mean = £36, median = £33. Hence, the boss would prefer the mean as it's hig
   ***3 mark**s. 1 mark for each correct answer and 1 mark for the correct interpret*

3. Tying pay to **median** income would be better for reducing inequality. The me
   by higher earners. If a boss was concerned about raising his own pay then he
   the wages of all workers.
   ***2 marks**. **1 mark** for the correct answer (median). 1 mark for interpreting tha*

4. Mean income has risen at a consistently higher rate than the median income
   salaries of the highest earners have risen at a higher rate and thus the mean
   ***3 marks**. **1 mark** for pointing out that mean income has risen at a higher rate*
   further marks for interpreting the effect this has on inequality, etc.

Skill 4: Quantiles

1.

Q1	12	17	20	21	22
Q2	23	24	25	32	35
Q3	36	37	37	37	39
Q4	40	41	45	47	48

***3 marks**. Give **3 marks** if all numbers are correct.*

2. The median value is **35.5**
***1 mark**. Incorrect if the student has rounded this to 3*

3. The interquartile range is 22.5 to 39.5 [illegible]ch can also be stated as 39.5-22.5
***2 marks** for the correct answer. Award **1 mark** if the student is 0.5 either side*

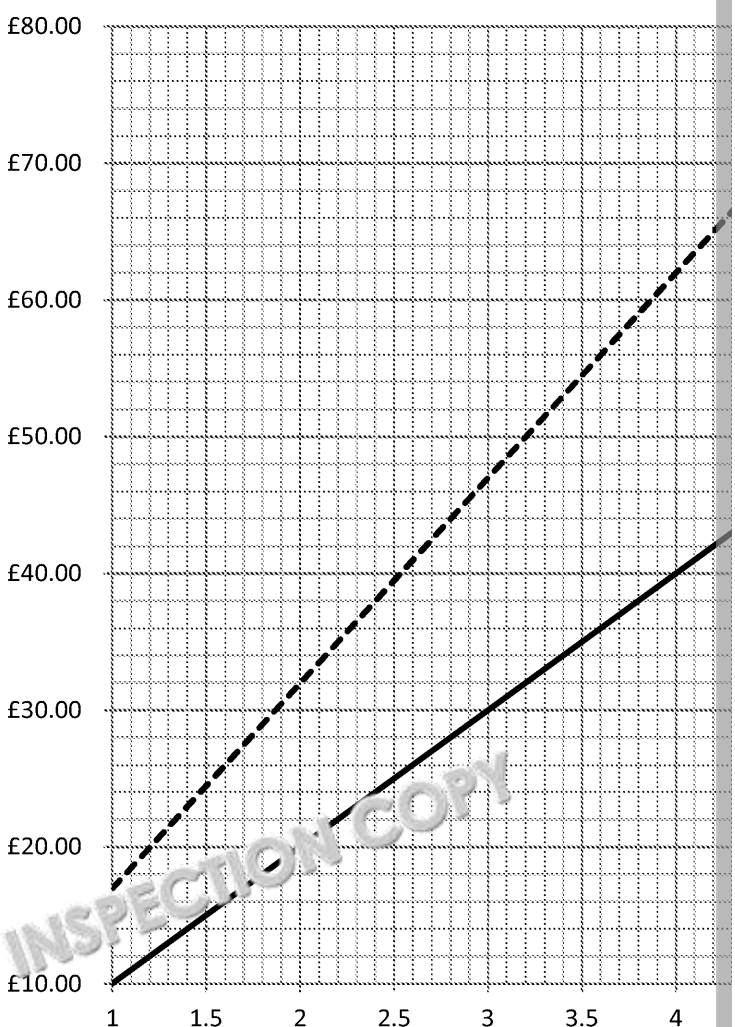
4. We are [illegible]g [illegible] the student to talk about the distribution of values: there [illegible] than in [illegible]e median value is not in the middle, suggesting that high value [illegible] student may suggest an example of data that may be distributed like this (e.g
***3 marks**. **1 mark** for just pointing out facts about the relevant positions of Q1 [illegible] appropriately for sensible points and observations about the distribution of v*

Skill 5: Standard graphical forms

1. The table should be filled in as below.
   *Award **2 marks**, **1 mark** for each correct column.*

Passengers	Revenue	1. 50% increase	2. Plus £2
1	10	**15**	**17**
2	20	**30**	**32**
3	30	**45**	**47**
4	40	**60**	**62**
5	50		**77**

2. The graph should be drawn below.
   *Award **2 marks**, **1 mark** for the right shape and 1 mark if it passes through th*



3. The gradient is 30/2 = 15. It is a shift **and** a rotation.
   *Award **2 marks**, **1 mark** for the gradient and 1 mark for a correct interpretati*

Skill 6: Index numbers

1. Correct answers as shown below.

Year	Goods in the basket			Price Va
	Good	Price	Weight	
2013	Good X	£5.50	0.5	£3.28
	Good Y	£0.50	0.1	
	Good Z	£1.20	0.4	
2014	Good X	£5.40	0.5	**£3.63**
	Good Y	[illegible]	0.1	
	[illegible]	£2.20	0.4	
20[illegible]	Good X	£5.60	0.5	**£5.08**
	Good Y	£0.80	0.1	
	Good Z	£5.50	0.4	

*Award **6 marks** for all correct answers and working. Deduct **1 mark** for each incorrect. Award 2 marks if the attempted working is appropriate and the un the % sign has been used in the index column).*

2. The ONS would adjust the weights if they feel that consumer spending habit feel that consumers are purchasing more of Good X and less of Good Y. Thus *Award **2 marks**. **1 mark** for the idea that weights may change to reflect chan the student has indicated that this specific change means that consumers are fewer of Good Y.*

3. Price value = £4.27; Index = 130
*Award **3 marks**. **1 mark** for each correct answer. **1 mark** for the working.*

4. The idea that although the higher-priced item has decreased in price, it has relatively. Thus, there is inflation.
*Award **2 marks**. **1 mark** for the idea that Good X has become more importan more often. **1 mark** for correct interpretation of the effect.*

Skill 7: Cost, revenue and profit (average, totals)

1. TR = Q × P so P= TR / Q = 2000 / 40 = **£50**
   *Award **2 marks**. **1 mark** for rearranging the formula, **1 mark** for correct answ*

2. a) 17/5 = **£3.40**
   *Award **1 mark** for the correct answer.*

   b) £3.40–£1.40 = **£2**
   *Award **1 mark** for the correct answer.*

   c) TR = **£20** (slight trick question – the answer is given). Profit = TR - TC = 2
   *Award **2 marks**. **1 mark** for each correct ans*

   d) AR = P = 20/5 = **£4**
   *Award **1 mark** for th* *rrec* *nswer.*

3. a) AV 0- = **£8**
   Aw ***mark** for the correct answer.*

   b) AVC increase by 25% – £8 to £10. AFC remains constant. So new AC (tot
   *Award **2 marks**. **1 mark** for working, **1 mark** for correct answer.*

Skill 8: Cost, revenue and profit (marginal)

1.

Units of output	Total Cost	Marginal Cost
0	11	**11**
1	21	**10**
2	30	**9**
3	38	**8**
4	44	**6**
5	55	**11**

*Award **1 mark** for filling in all six values correctly.*

2. a)

Total Output	Total Reve	MR	Total Cost	
1		**100**	70	
2	200	**100**	140	
3	300	**100**	200	
4	400	**100**	300	
5	500	**100**	510	

*Award **4 marks**. **1 mark** for each column and 1 mark if working is correc*

   b) Profit is maximised when MR = MC. In this case that is producing 4 units
   *Award **2 marks**. **1 mark** for the profit maximisation rule, **1 mark** for the*

Skill 9: Converting money to real terms

1. a) [((1110 - 1010) / 1010) × 100] = 9.9%
*Award **2 marks**. **1 mark** for correct answer, **1 mark** for suitable working*

b) [(1110 / 103) × 100] = $1077.7
*Award **2 marks**. **1 mark** for correct answer and **1 mark** for suitable work*

c) [((1077.7 - 1010) / 1010) × 100] = 6.7%
*Award **2 marks**. **1 mark** for correct answer, **1 mark** for suitable working*

2. (1110 / 1.57) = £707bn
*Award **2 marks**. **1 mark** for correct answer and **1** [illegible] for suitable working a*

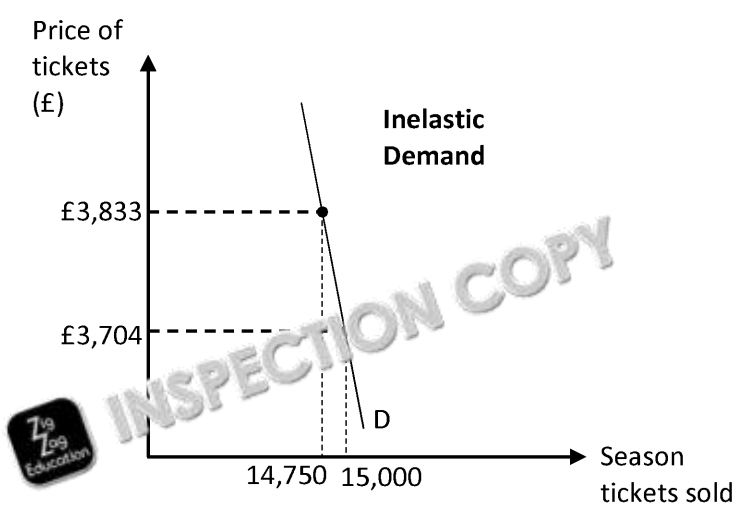
3. This question is deliberately vague and is designed to give students practice i
*Award **4 marks** for suitable answers. Points include:*
   - *In general wages have grown at a higher rate than inflation.*
   - *[illegible]ha[illegible]ged since 2008 financial crisis and subsequent recession.*
   - *[illegible] wages are not rising as fast as inflation.*
   - *Links to purchasing power (now decreasing – people can afford fewe*

Skill 10: Elasticity

1. a) PED = change in Q%/change in P% = [(14 750 - 15 000) / 15 000] / [(383
= (-1.6/3.48) = **(-) 0.46**
*Award **3 marks**. **1 mark** for correct PED formula, **1 mark** for good workin*

b) **Inelastic** (less than 1). This is because commuters may have no other wa
buy train tickets despite price rises.
*Award **2 marks**. **1 mark** for the correct answer (inelastic) and **1 mark** for*

c) We are looking for something like this:

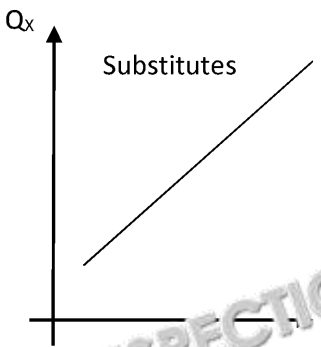


*Award **3 marks**. **1 mark** for the steep slope showing inelastic demand, **1***
*correctly, **1 mark** for adding the values on the axes and connecting them*

2. YED = change in Q % / change in income % = [(14 - 12) / 12) / 7.5] = **2.2**
*Award **3 marks**. **1 mark** for the correct answer, **1 mark** for correct formula a*

3. a) XED = change in Q_X % / change in P_Y % = [(360 000 - 220 000 / 220 000) ×
*Award **3 marks**. **1 mark** for the correct answer, **1 mark** for correct formu*

b) We are looking for a rough sketch showing the layout below:



*Aw **2 marks**. **1 mark** for the correct upward-sloping line (as the price for electric cars also increases), **1 mark** for labelling the axes.*

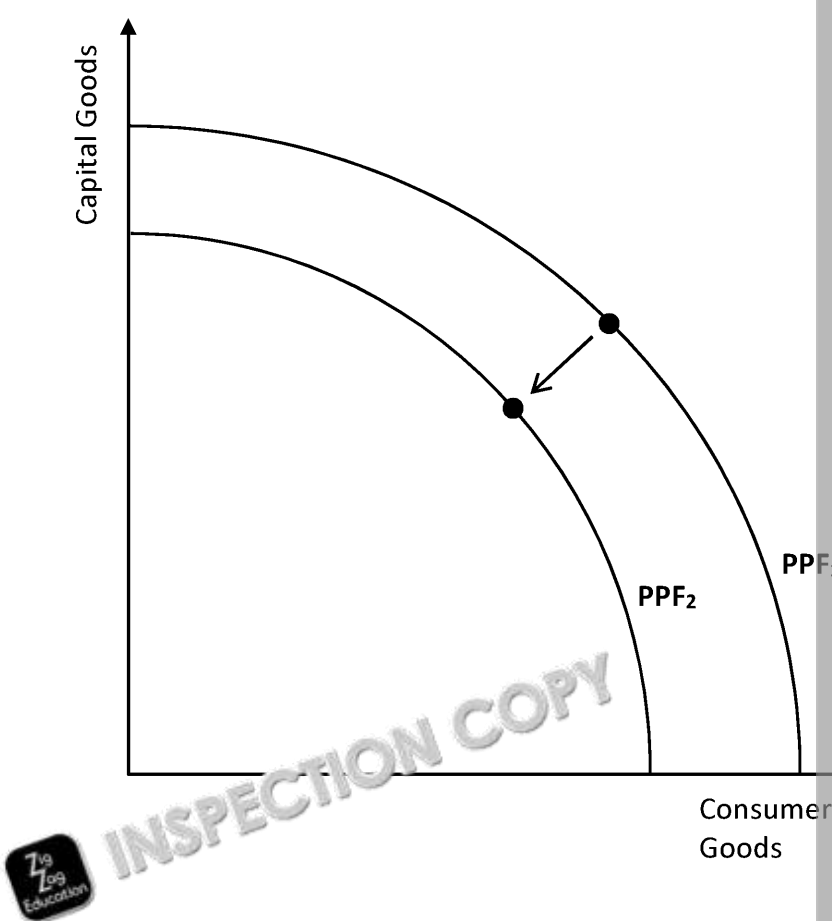
Skill 11: Information in written, graphical and numerical forms

1. *Total **4 marks**. There is a lot going on in this graph. Award **1 mark** for correct employment has decreased since 2008 and **1 mark** for interpreting that part- Award a further mark for discussing some numbers from the graph – check th axes correctly. Award a further mark for any other correct observation, e.g. t mentioning the 2008 financial crisis, etc.*

2. *Total **3 marks**. **1 mark** for pointing out that the claimant count has risen sinc unemployment is higher, **1 mark** for correctly using an example figure from t other interpretation, e.g. the claimant count may be higher if fewer workers that unemployment rose in 2008 and has then remained steady, not yet decr*

3. *Total **5 marks**. The key line here is 'They tend to receive less training'. With le productive – they won't develop the skills needed to be as efficient as possibl shift outward as far as it could. Award **2 marks** for this observation.*

   *Award another **3 marks** for drawing a suitable PPF diagram – showing a sm receive training. We are looking for something like this:*



MARK SCHEME FOR QUANTITATIVE SKILLS TA

Section A: Multiple-choice Questions (15 marks)

1.	C	5.	B	9.	B
2.	A	6.	D	10.	A
3.	A	7.	A	11.	C
4.	D	8.	A	12.	D

Detailed answers:

1. John has a savings ratio of 0.14 and earns £8 per hour. How much of his ho

$0.14 \times 8 = £1.12$

2. The number of unemployed people in Sandbourne rises from 34,120 to 35, is this?

$$\frac{(35\,690 - 34\,120)}{34\,120} \times 100 = 4.601\%$$

3. Interest rates rise from 4% to 5.5%. What *percentage change* in interest ra

$$\left(\frac{(5.5 - 4)}{4}\right) \times 100 = 37.5\%$$

4. What are the mean and median values for this set of numbers?

Mean: Sum of all numbers is 64.

$$\frac{64}{10} = 6.4$$

Median: Middle values are 4 and 5. Don't round up to 5: the answer is in be

5. The price value of a basket of goods in 2010, the base year, is £5.30. In 201 and in 2012 it costs £5.85. What is the index for 2012?

$$\left(\frac{5.85}{5.30}\right) \times 100 = 110.38$$

6. When do firms maximise profits?

Firms maximise profits whe MC = MR. The golden rule.

7. **Incomes in an economy have risen by 5% and annual sales of musical theat 14.7 million. What is the income elasticity of demand for musical tickets (if affected demand)?**

$$\text{YED} = \frac{\Delta \text{ demand } \%}{\Delta \text{ income } \%}$$

$$\Delta \text{ demand } \% = \left(\frac{(14.7 - 14)}{14} \times 100\right) = 5$$

$$\text{YED} = \frac{5}{5} = 1$$

8. **The price of 750g of salt in a [illegible] rises from £0.28 to £0.35. The su 2%. What is the price [illegible] of demand for salt?**

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

$$\Delta \text{ price } \% = \left(\frac{(35 - 28)}{28} \times 100\right) = 25$$

$$\text{PED} = \frac{2}{25} = 0.08$$

9. **The exchange rate of pounds to dollars is 1.60. How many pounds is $4,000**

$$\frac{4000}{1.60} = £2{,}500$$

10. **Annual wages in an economy rose from £20,000 to £25,000 from 2010 to 2 with respect to 2010 is 105. What is the percentage increase in wages in re**

$$\frac{25\,000}{105} \times 100 = 23{,}809.5$$

$$\frac{(23\,809.5 - 20\,000)}{20\,000} \times 100 = 19.047\%$$

11. **A supermarket has to increase the price of its orange juice following a prod costs 65p more, an increase of [illegible]. However, the supermarket sees a 28% What is the cross price elasticity of demand?**

$$\text{XED} = \frac{\%}{\%} = \frac{28}{35} = 0.8$$

12. **Suppose 80 Polish zloty is equal to £14.29. What is the pound-to-zloty exch**

$$\frac{80}{14.29} = 5.598 = 5.6$$

13. Stephanie pays 40% of her income in tax. She saves 10%, gives 5% to charit
Supposing she has an annual salary of £60,000, how much does she spend

$100 - (40 + 5 + 10) = 45$

$0.45 \times 60\,000 = 27\,000$

$\frac{27\,000}{12} = £2{,}250$

14. Look at the following diagrams. Which shows the most elastic demand?

Diagram C is the most elastic – the flatter line m[illegible] a small change in p
higher change in quantity demanded.

15. Consider the following [illegible] What is the average cost of producing 3 units

$\frac{27}{3} = £9$

16. Following an increase in prices across the whole sector, the couple running
prices by 5%. They are willing to sell 60 more burritos a day at this price – u
their price elasticity of supply (PES)?

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

$$= \frac{15.4\%}{5\%} = \mathbf{3.1}$$

Section B: Longer-answer Questions (28 marks)

1. a) (16 000 × 0.09) = 1440
(19 000 × 0.22) = 4180

(1440 / 4180) × 100 = **34.45%**
*Award **2 marks**. **1 mark** for the correct answer, **1 mark** for working and*

b) The median is **£29,000**. [(25 000 + 33 000) / 2]
*Award **2 marks**. **1 mark** for the correct answer, **1 mark** for good attemp*

c) 35 500 + [(3 / 100) × 35 500] = **£36,565**
*Award **1 mark** for the correct answer.*

d) 35 500 + [(5 / 100) × 35 5[illegible] = **£3[illegible],275**
*Award **2 marks** fo[illegible] correct answer and working.*

2. a)

Year	Goods			Pr
	Good	Price	Weight	
2010	Good A	£1.00	0.25	
	Good B	£2.00	0.15	
	Good C	£3.00	0.2	
	Good D	£4.00	0.4	
2011	Good A	£1.10	0.25	
	Good B	£2.00	0.15	
	Good C	£3.20	0.2	
	Good D	£4.50	0.4	
2012	Good A	£1.10	0.25	
	Good B	£2.05	0.15	
	Good C	£3.25	0.2	
	Good D	£4.45	0.4	
2013	Good A	£1.10	0.25	
	Good B	£2.00	0.15	
	Good C	£3.40	0.2	
	Good D	£4.40	0.4	

*The table should be filled in as above. Award **3 mark**s, subtracting **1 ma***

b) A basket of goods cost the same in 2[illegible]11 a[illegible] **2013**; 2012 was very simila
*Award **1 mark** for the corr[illegible]*

3. a) AR $= \frac{TR}{Q} = \frac{P \times Q}{Q} = P$

*Award **2 marks**. **1 mark** for the correct formula and **1 mark** for cancellin*

b)

Total Output	Total Revenue	MR	Total Cost	
1	8	8	6	
2	16	8	13	
3	24	8	20	
4	32	8	28	
5	40	8	42	

The MC column should be filled in as above. The profit-maximising outpu
*Award **1 mark** for filling in the MC column and for identifying that profit*

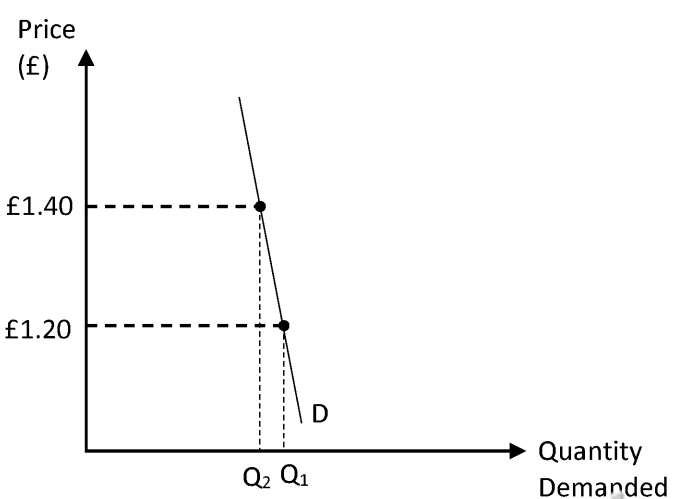
4. a) [(385 - 350) / 350] × 100 = **10%**
*Award **2 marks**. **1 mark** for the correct answer and **1 mark** for working*

b) (385 × 3.5) = **390,860,000 yen**
*Award **2 marks**. **1 mark** for the correct answer and **1 mark** for working*

c) [(390 860 000 - 350 000 000) / 350 000 000] × 100 = **11.68%**
*Award **2 marks**. **1 mark** for the correct answer and **1 mark** for working, sign.*

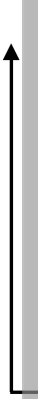
5. a) PED = 12/16.6 = **0.72**
*Award **1 mark** for the correct answer.*

b)



We are looking for a steep downwards-sloping line.
*Award **2 marks**. **1 mark** for the correct line shape and **1 mark** for labelli*

c) XED = -12/-15 = 0.8. They are strong substitutes.
*Award **2 marks**. **1 mark** for the correct answer, **1 mark** for the word 'substitutes', **1 mark** for a diagram similar to the one on the right with the key factor being an upwards-sloping line.*



Section C: Data Response

1. This is quite a tricky graph to interpret. They key is that when the line is belo
decreasing on the previous year, even if the line is moving upwards.
*Award up to **3 marks:** up to **2 marks** for describing the main trend of the line
following longer-term trend of a rise), **1 mark** for linking a trend to economic
some values from the line, **1 mark** for any other observation (e.g. quite volati*

2. The main point here is that real earnings have decreased, and so much of the
spend in real terms. Hence, the discount or budget supermarkets have becor
*Award **3 marks** for correct interpretation and relevant discussion.*

3. Concentration ratio = (29.4 + 17.1 + 16.4) = 62.9%
*Award **2 marks**. **1 mark** for correct answer and 1 mark for working, the decir*

APPENDIX: KEY UK ECONOMIC INDICA

All figures for 2014

Growth	GDP	$2
	GDP (real growth rate)	3.
	GDP per capital	$3
	Gross national saving rate	1(
GDP by sector	Agriculture	0.
	Indust	2(
	Services	7(
Labour	Labour force	3(
	Unemployment rate	5.
	Population below poverty line	1(
Household income by percentage share	Bottom 10%	1.
	Top 10%	3(
Public debt	86.6% of	
Inflation	Consumer prices	1.
Trade	Exports	$5
	Imports	$6