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# AS LEVEL

Teacher Guide

H031

# BUSINESS

Quantitative Skills Guide

September 2015



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Oxford Cambridge and RSA

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## QUANTITATIVE SKILLS GUIDE FOR AS BUSINESS (H031)

### INTRODUCTION

Quantitative skills have always formed part of the AS Level Business courses run by OCR however a new requirement from September 2015 means that there will be assessment of quantitative skills in every exam series. The assessment of quantitative skills will now include at least level two mathematical skills as a minimum of 10% of the overall AS level marks and as a minimum of 10% of the overall A Level marks. As well as calculations and the construction of graphs, the quantitative skills requirement includes interpretation, understanding, application, analysis and decision making using quantitative information.

The OCR AS and A Level Business specifications provide explicit, drilled-down exemplifications within each component. This makes it clearer for teachers and students to know where calculations are required and where the use and

interpretation of quantitative information is appropriate. The grids below match the 'learners should be able to' calculate or construct statements from the AS specification with relevant guidance and links to practice questions to support the teaching of areas of the specification which require calculations and the construction of diagrams.

Further support is available from the OCR Business page <http://www.ocr.org.uk/qualifications/as-a-level-gce-business-h031-h431-from-2015/> and from the Business Studies OCR social community: <http://www.ocr.org.uk/community/>.

Textbook references are to 'OCR Business for A Level' by Mottershead, Kelt & Grant published by Hodder Education ISBN 9781471836152.



Calculate		
Content	Learners should be able to:	Guidance and resources
Cost, revenue and profit	calculate and interpret costs, revenue, profit, total cost, average cost, fixed cost, variable cost, total revenue, price, average revenue, direct, indirect and overhead costs	<p>Whilst being able to calculate costs/revenue/profit is important, understanding the specific meaning of the financial terms and being able to use the terminology accurately is even more crucial. Terms such as 'money' should be avoided in preference for a more meaningful term be it cash in hand, profit, revenue, direct costs etc. Costs may be classified as fixed and variable or as direct and indirect hence both the following formula can be used to calculate total cost:</p> <p>total cost = variable costs + fixed costs</p> <p>or</p> <p>total cost = direct costs + indirect costs</p> <p><b>OCR Business for A Level chapter 26</b></p> <p><b>Practice exam questions:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">AS Level in Business H031/01 The local business environment sample assessment material</a> Questions 4, 18a</li> <li>• <a href="#">AS Business Studies (H030) Business functions (F292) Jan 2012</a> question 1d</li> <li>• <a href="#">AS Applied Business (H026) Understanding the business environment (F242) Jan 2012</a> question 2</li> </ul>



Calculate		
Content	Learners should be able to:	Guidance and resources
Break-even analysis	<p>calculate and interpret contribution, break-even, margin of safety and target level of profit</p> <p>calculate and interpret the impact on break-even, margin of safety contribution and target level of profit of changes in costs and revenue</p> <p>construct and interpret a break-even graph</p>	<p>Costs/revenue/profit and breakeven are key concepts which underpin most of the financial aspects on the specification. These tools produce quantitative data for use in decision making, it should be emphasised however that decisions should never be made purely on the basis of financial projections.</p> <p>When calculating contribution students need to take particular care to consider whether they need total contribution or contribution per unit.</p> <p>Total contribution = total revenue – total variable costs</p> <p>Contribution per unit = selling price – variable cost per unit</p> <p><b>OCR Business for A Level chapters: 27 &amp; 28</b></p> <p><b>Practice exam questions:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">AS Level in Business H031/01 The local business environment sample assessment material</a> question 14</li> <li>• <a href="#">AS Business Studies (H030) Business functions (F292) June 2012</a> question 1d</li> <li>• <a href="#">A2 Business Studies (H430) Business production 2014 (F296) question 4</a></li> <li>• <a href="#">A2 Business Studies (H430) Business production (F296) Jan 13 question 2</a></li> <li>• <a href="#">A2 Business Studies (H430) Marketing June 2012 (F293)</a> question 1</li> <li>• <a href="#">A2 Applied Business H426 Strategic decision-making F248</a> June 2013 question 3</li> </ul>



Calculate		
Content	Learners should be able to:	Guidance and resources
Investment appraisal	calculate and interpret quantitative methods of investment appraisal: the payback period, average rate of return (ARR) and net present value (NPV)	<p>Once the arithmetical techniques have been mastered teaching should focus on what the results of investment appraisal actually mean and what course of action a business should take. It is also important to emphasise the limitations of making investment decisions purely on the basis of financial projections.</p> <p>Students need to realise that even when payback, ARR and NPV have been correctly calculated it is not sufficient to simply recommend the option with the 'best' forecasted results. Account must be taken of qualitative information, especially the particular circumstances of the business given in the scenario.</p> <p><b>OCR Business for A Level chapter 29</b></p> <p><b>Practice exam questions:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">AS Level in Business H031/01 The local business environment sample assessment material</a> question 15</li> <li>• <a href="#">A Level in Business H431/02 The UK business environment sample assessment material</a> question 4</li> <li>• <a href="#">AS Business Studies (H030) Business functions (F292) June 2012</a> question 2a</li> <li>• <a href="#">A2 Business Studies (H430) Strategic Management (F297) June 2013</a> question 4</li> <li>• <a href="#">A2 Applied Business H426 Strategic decision-making F248 June 2013</a> question 5</li> </ul> <p>There are further investment appraisal lesson elements which can be accessed via the qualification web page:  <a href="http://www.ocr.org.uk/qualifications/as-a-level-gce-business-h031-h431-from-2015/">http://www.ocr.org.uk/qualifications/as-a-level-gce-business-h031-h431-from-2015/</a></p>



Calculate		
Content	Learners should be able to:	Guidance and resources
Budgets and variances	calculate and interpret budgets and variances	<p>When teaching budgets and variance analysis care should be taken to cover not only cost budgets e.g. labour and raw materials but also sales revenue and profit budgets. Students should be able to calculate actual variance and percentage variance, comment on the likely causes of such variance and, where appropriate, make recommendations to address the issues revealed.</p> <p>When carrying out variance analysis students need to refer to variances as 'adverse' or 'favourable'.</p> <p><b>OCR Business for A Level chapter 30</b></p> <p><b>Practice exam questions:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">A Level in Business H431/01 Operating in a local business environment sample assessment material</a> question 9</li> <li>• <a href="#">AS Business Studies (H030) Business functions (F292) Jan 13</a> question 1d</li> <li>• <a href="#">AS Applied Business (H026) Understanding the business environment (F242) 2014 question 4a</a></li> </ul>



Calculate		
Content	Learners should be able to:	Guidance and resources
<b>Cash-flow</b>	<p>calculate, interpret and analyse cash-flow forecasts</p> <p>calculate, interpret and analyse the impact on a cash-flow forecast of changes in costs and revenue</p>	<p>Students need to realise the critical importance of adequate cash-flow to the success of a business. Cash-flow forecasts are tools used to anticipate future cash-flow problems and allow effective cash-flow management to take place. Students need to be equipped with the skills to evaluate the usefulness of cash-flow forecasts to a particular business and/or its particular group of stakeholders.</p> <p><b>OCR Business for A Level chapter 31</b></p> <p><b>Practice exam questions:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">AS Level in Business H031/01 The local business environment sample assessment material</a> question 17</li> <li>• <a href="#">AS Level in Business H031/02 The wider business environment sample assessment material</a> question 5</li> <li>• <a href="#">AS Applied Business H026 Understanding the business environment (F242) Jan 2013</a> question 6</li> <li>• <a href="#">AS Applied Business H026 Understanding the business environment (F242) June 2012</a> question 6</li> </ul> <p>There are further cash-flow teaching and learning activities which can be accessed via the qualification web page:  <a href="http://www.ocr.org.uk/qualifications/as-a-level-gce-business-h031-h431-from-2015/">http://www.ocr.org.uk/qualifications/as-a-level-gce-business-h031-h431-from-2015/</a></p>
<b>Income statements</b>	<p>calculate, interpret and analyse measures of profit; gross profit, operating profit and net profit</p> <p>complete, interpret and analyse an income statement</p>	<p>Whilst students should be able to complete both an income statement and statement of financial position, the emphasis of teaching should be on understanding the component parts and being able to assess the significance of changes in values e.g. changes in goodwill, an increase in inventory, a decrease in receivable or a fall in gross profit.</p> <p><b>OCR Business for A Level chapter 33</b></p> <p><b>Practice exam questions:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">A2 Business Studies (H430) Accounting (F294) 2014</a> question 1</li> </ul>



Calculate		
Content	Learners should be able to:	Guidance and resources
Statement of financial position	complete, interpret and analyse a statement of financial position (non-current assets, inventory, receivables, payables, working capital, non-current liabilities, net assets, retained earnings and total shareholders' equity)	<p>The format and terminology of both the income statement and statement of financial position have been updated therefore care must be taken when using past paper questions. Question 8 in the sample assessment material gives an example of using the updated terminology in the specification.</p> <p><b>OCR Business for A Level chapter 34</b></p> <p><b>Practice exam questions:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">AS Level in Business H031/02 The wider business environment Sample assessment material</a> question 8</li> <li>• <a href="#">AS Business Studies (H030) Business functions (F292) 2014</a> question 5</li> <li>• <a href="#">AS Business Studies (H030) Business functions (F292) Jan 2013 F292 Jan 13 Q3 F292 Jan2013 case study</a></li> <li>• <a href="#">AS Business Studies (H030) Business functions (F292) Jan 2012</a> question 1c</li> </ul>
Ratio analysis	<p>calculate and interpret liquidity ratios: current ratio and acid test</p> <p>calculate and interpret profitability ratios; gross profit margin, net profit margin, return on capital employed (ROCE) and return on equity</p>	<p>As well as understanding the financial statements, students also need to be able use ratio analysis as a basis for investigation into the financial position of the business. Students also need to be able to consider the usefulness of final accounts/ratio analysis to the business and it's stakeholders. The final accounts and ratios can then be evaluated to see the extent to which they provide information to different stakeholder groups concerning their primary objectives.</p> <p><b>OCR Business for A Level chapters 36 &amp; 39</b></p> <p><b>Practice exam questions:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">AS Level in Business H031/02 The wider business environment Sample assessment material</a> questions 4a &amp; 4b</li> <li>• <a href="#">A Level in Business H431/01 Operating in a local business environment sample assessment material</a> question 20a</li> <li>• <a href="#">A2 Business Studies (H430) Accounting (F294) June 2013</a> question 1 <a href="#">F294 June 2013 resource booklet</a></li> <li>• <a href="#">A2 Business Studies (H430) Accounting (F294) Jan 2012</a> question 1 <a href="#">F294 Jan 2012 resource booklet</a></li> <li>• <a href="#">A2 Business Studies (H430) Strategic Management (F297) Jan 12</a> question 1 <a href="#">a F297 Jan 2012 resource booklet</a></li> </ul>



Calculate		
Content	Learners should be able to:	Guidance and resources
<b>Workforce performance</b>	calculate and interpret measures of workforce performance: including lateness, absenteeism, labour turnover and <i>productivity</i> ( <i>note productivity calculation can also be taught as part of the productive efficiency area of study</i> )	<p>Students should be aware of the importance of reviewing performance from all within the workforce by using specific statistical information and analysing it, acting upon the findings in various forms. Giving students specific information to interpret will give them a real understanding of how management can utilise the figures, thereby creating an action plan to implement, in order to gain the maximum potential from all staff within the organisation.</p> <p><b>OCR Business for A Level chapter 45</b></p> <p><b>Practice exam questions:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">AS Level in Business H031/01 The local business environment sample assessment material</a> question 3</li> <li>• <a href="#">A2 Business Studies H030 People in organisations (F295) Jan 2013</a> question 1 <a href="#">F295 Jan 2013 resource booklet</a></li> <li>• <a href="#">A2 Business Studies H430 People in organisations (F295) Jan 2012</a> question 1a <a href="#">F295 Jan 2012 resource booklet</a></li> <li>• A2 Applied Business H426 Strategic decision-making F248 2015 question 3</li> <li>• <a href="#">A2 Applied Business H426 Strategic decision-making F248 June 2013</a> question 1</li> <li>• <a href="#">A2 Applied Business H426 Strategic decision-making F248 June 2012</a> question 1</li> </ul>
<b>Identifying customer needs</b>	calculate, interpret and analyse market share and market growth	<p>Students sometimes mix up the terms market size, market share and market growth and they must ensure that they are clear what is being asked for in any particular exam question. Both market share and market growth can be calculated as percentages. Percentage changes may also provide useful information to understand developments in a market over time.</p> <p><b>OCR Business for A Level chapter 52</b></p> <p><b>Practice exam questions:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">A Level in Business H431/02 The UK business environment sample assessment material</a> question 7</li> <li>• A2 Business Studies H430 Marketing (F293) 2015</li> </ul>



Calculate		
Content	Learners should be able to:	Guidance and resources
Price	calculate and interpret price, income and cross elasticities of demand	<p>As well as practicing the calculations, students need to understand how a business may use information about elasticity and what is within a business' control. For price elasticity of demand (PED), students need to appreciate that a business has control over the price charged and this will affect quantity demanded.</p> <p>This topic should also be linked to demand and supply diagrams (see construct table below) and changes to revenue.</p> <p><b>OCR Business for A Level chapter 55</b></p> <p><b>Practice exam questions:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">AS Level in Business H031/01 The local business environment sample assessment material</a> question 13</li> <li>• <a href="#">A Level in Business H431/01 Operating in a local business environment sample assessment material</a> question 19a</li> <li>• <a href="#">AS Business Studies H030 Business functions (F292) 2014</a> question 2a</li> <li>• <a href="#">AS Business Studies H030 Business functions (F292) Jan 2013</a> question 2a <a href="#">F292 Jan 2013 case study</a></li> <li>• <a href="#">A2 Business Studies H430 Marketing (F293) June 2013 question 1</a> F293 <a href="#">June 2013 resource booklet</a></li> </ul>



Calculate		
Content	Learners should be able to:	Guidance and resources
Productivity	calculate measures of productivity	<p>Comparing output against the level of staffing is a very common measure of productivity and labour productivity can also be taught as part of workforce performance. However productivity can also be measured and evaluated in relation to other factors of production such as machine hours or floor space.</p> <p><b>OCR Business for A Level chapter 64</b></p> <p><b>Practice exam questions:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">A Level in Business H431/01 Operating in a local business environment sample assessment material</a> question 13</li> <li>• <a href="#">A2 Business Studies H430 People in Organisations (F295) June 2013</a> question 1</li> <li>• A2 Applied Business H426 Strategic decision-making F248 2015 question 3</li> <li>• <a href="#">A2 Applied Business H426 Strategic decision-making F248 June 2012</a> question 1</li> <li>• <a href="#">A2 Applied Business H426 Strategic decision-making F248 Jan 2012</a> question 2</li> </ul>
Added value	calculate added value	<p>Added value can be described as the difference between the price a business charges for the produce/service and the cost involved to make the product/service. Giving students the opportunities to see the benefits from an organisation using added value will enable them to work out and understand the concept.</p> <p>For example:</p> <p>Selling price = £10            Cost of inputs = £3            Added value = selling price – cost of inputs = £7.</p> <p><b>OCR Business for A Level chapter 60</b></p>



Calculate		
Content	Learners should be able to:	Guidance and resources
<b>Stock control</b>	construct, calculate and interpret stock control charts, buffer stock, reorder level and quantities and lead time	<p>Stock control within business can be a costly expense if it is not managed well, so it is important that students can see the link between stock control and production. By using small local businesses as examples students should be able to understand and see this link, before this is illustrated within larger businesses.</p> <p><b>OCR Business for A Level chapter 67</b></p> <p><b>Practice exam questions:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">A Level in Business H431/01 Operating in a local business environment sample assessment material</a> question 12</li> <li>• <a href="#">AS Business Studies H030 Business functions (F292) June 2013</a> question 1d</li> <li>• <a href="#">AS Business Studies (H030) Business functions (F292) Jan 2012</a> question 2a <a href="#">F292 Jan 2012 case study</a></li> <li>• <a href="#">A2 Business Studies H430 Business production (F296) Jan 2012</a> question 2 <a href="#">F296 Jan 2012 resource booklet</a></li> </ul>
<b>Internal quality standards</b>	calculate and interpret measures of wastage	<p>The wastage rate can be used as measure of efficiency within a business. It is often considered by a business alongside other measures of efficiency such as labour productivity.</p> $\frac{\text{Number of rejects produced (by employee or department)}}{\text{Total number of products produced}} \times 100$ <p><b>OCR Business for A Level chapter 70</b></p> <p><b>Practice exam questions:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">A2 Business Studies H430 People in organisations (F295) Jan 2012</a> question 1 <a href="#">F295 Jan 2012 resource booklet</a></li> <li>• A2 Applied Business H426 Strategic decision-making F248 2015 question 3</li> <li>• <a href="#">A2 Applied Business H426 Strategic decision-making F248 Jan 2012</a> question 2</li> </ul>
<p>Other general calculations in the specification include:</p> <ul style="list-style-type: none"> <li>• Percentages and percentage changes</li> <li>• Ratios, averages and fractions</li> </ul>		



Construct		
Content	Learners should be able to:	Guidance and resources
<b>Demand and supply</b>	<p>construct and interpret demand and supply diagram(s) to show how changes in the determinants of demand and supply affect equilibrium</p> <p>construct and interpret demand and supply diagram(s) to show excesses and shortages in a market</p>	<p>Students need to be able to construct diagrams and to understand movements along and shifts in the demand and supply curves. For example a change in income is a determinant that causes a shift in the demand curve leading to a movement along the supply curve to a new equilibrium point. This topic can also be linked with price in the marketing strategy area of study.</p> <p><b>OCR Business for A Level chapters 14 and 55</b></p> <p><b>Practice exam questions:</b></p> <ul style="list-style-type: none"> <li>• <a href="#">A Level in Business H431/01 Operating in a local business environment sample assessment material</a> question 10</li> <li>• AS Business Studies (H030) An introduction to business (F291) 2015 question 3</li> </ul>
<b>Product</b>	complete, understand and interpret a product life cycle diagram	<p>Students will need to understand changes in the level of sales of a product and its cash flows over time and what this looks like in a product life cycle diagram. They need to appreciate the difference between the different stages of the product life cycle and the impact on sales, costs and cash flow.</p> <p><b>OCR Business for A Level chapter 54</b></p>

*Note: construction of break-even graphs and stock control charts are included with the relevant content in the calculations section*



## Interpret, apply, analyse, use, understand

Businesses use quantitative information to help them to make decisions and students will need to be able to do the same. Topics which include calculations also require decisions and evaluation skills to be used. For example students need to be able evaluate the impact of break-even analysis and also be able recommend and justify how a business could lower its break-even point.

The resource material provided for each exam is shorter than the pre-release material given in the previous AS Business Studies specification but may still provide quantitative information in a range of graphical and numerical forms. This may also offer opportunities for interpretation and analysis in order to make decisions.

The resource booklets in the sample assessment material include the use of percentages, index numbers, bar charts, pie charts, and line graphs to illustrate commonly used graphical forms and quantitative skills required. In addition **OCR Business for A Level chapter 32** offers greater detail to support students' ability to understand and interpret index numbers.

There are also lesson elements related to responding to unseen data which can be accessed via the qualification web page:

<http://www.ocr.org.uk/qualifications/as-a-level-gce-business-h031-h431-from-2015/>

### Quantitative Skills in Business – agreed with Department for Education and included in all exam boards specifications

In order to be able to develop their skills, knowledge and understanding in Business, learners need to have acquired competence in the quantitative skills that are relevant to the subject content and which are applied in the context of a Business A level, including:

- calculate, use and understand percentages and percentage changes
- calculate, use and understand ratios, averages and fractions
- construct and interpret a range of standard graphical forms
- interpret index numbers
- calculate cost, revenue, profit and break-even
- calculate investment appraisal outcomes and interpret results\*
- interpret values of price and income elasticity of demand
- use and interpret quantitative and non- quantitative information in order to make decisions
- interpret, apply and analyse information in written, graphical and numerical forms.

The assessment of quantitative skills will include at least level two mathematical skills as a minimum of 10% of the overall AS level marks and as a minimum of 10% of the overall A Level marks.

These quantitative skills may be assessed across the assessment objectives.

\* as this skill does not form part of the AS Level core content, it may still be assessed at AS Level but it must be assessed at A Level.





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