British library cataloguing-in-publication data

A catalogue record for this book is available from the British Library.

Published by:
Kaplan Publishing UK
Unit 2 The Business Centre
Molly Millars Lane
Wokingham
Berkshire
RG41 2QZ

ISBN: 978-1-78415-213-0

© Kaplan Financial Limited, 2015

The text in this material and any others made available by any Kaplan Group company does not amount to advice on a particular matter and should not be taken as such. No reliance should be placed on the content as the basis for any investment or other decision or in connection with any advice given to third parties. Please consult your appropriate professional adviser as necessary. Kaplan Publishing Limited and all other Kaplan group companies expressly disclaim all liability to any person in respect of any losses or other claims, whether direct, indirect, incidental, consequential or otherwise arising in relation to the use of such materials.

Printed and bound in Great Britain.

Acknowledgements

We are grateful to the Association of Chartered Certified Accountants and the Chartered Institute of Management Accountants for permission to reproduce past examination questions. The answers have been prepared by Kaplan Publishing.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior written permission of Kaplan Publishing.
# Contents

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter 1</td>
<td>A Revision of F2 topics</td>
<td>1</td>
</tr>
<tr>
<td>Chapter 2</td>
<td>Advanced costing methods</td>
<td>21</td>
</tr>
<tr>
<td>Chapter 3</td>
<td>Cost volume profit analysis</td>
<td>77</td>
</tr>
<tr>
<td>Chapter 4</td>
<td>Planning with limiting factors</td>
<td>109</td>
</tr>
<tr>
<td>Chapter 5</td>
<td>Pricing</td>
<td>147</td>
</tr>
<tr>
<td>Chapter 6</td>
<td>Relevant costing</td>
<td>179</td>
</tr>
<tr>
<td>Chapter 7</td>
<td>Risk and uncertainty</td>
<td>215</td>
</tr>
<tr>
<td>Chapter 8</td>
<td>Budgeting</td>
<td>247</td>
</tr>
<tr>
<td>Chapter 9</td>
<td>Quantitative analysis</td>
<td>287</td>
</tr>
<tr>
<td>Chapter 10</td>
<td>Advanced variances</td>
<td>311</td>
</tr>
<tr>
<td>Chapter 11</td>
<td>Performance measurement and control</td>
<td>381</td>
</tr>
<tr>
<td>Chapter 12</td>
<td>Divisional performance measurement and transfer pricing</td>
<td>423</td>
</tr>
<tr>
<td>Chapter 13</td>
<td>Performance measurement in not-for-profit organisations</td>
<td>445</td>
</tr>
<tr>
<td>Chapter 14</td>
<td>Performance management information systems</td>
<td>455</td>
</tr>
</tbody>
</table>
Paper Introduction
How to Use the Materials

These Kaplan Publishing learning materials have been carefully designed to make your learning experience as easy as possible and to give you the best chances of success in your examinations.

The product range contains a number of features to help you in the study process. They include:

1. Detailed study guide and syllabus objectives
2. Description of the examination
3. Study skills and revision guidance
4. Complete text or essential text
5. Question practice

The sections on the study guide, the syllabus objectives, the examination and study skills should all be read before you commence your studies. They are designed to familiarise you with the nature and content of the examination and give you tips on how to best to approach your learning.

The complete text or essential text comprises the main learning materials and gives guidance as to the importance of topics and where other related resources can be found. Each chapter includes:

- The learning objectives contained in each chapter, which have been carefully mapped to the examining body's own syllabus learning objectives or outcomes. You should use these to check you have a clear understanding of all the topics on which you might be assessed in the examination.
- The chapter diagram provides a visual reference for the content in the chapter, giving an overview of the topics and how they link together.
- The content for each topic area commences with a brief explanation or definition to put the topic into context before covering the topic in detail. You should follow your studying of the content with a review of the illustrations. These are worked examples which will help you to understand better how to apply the content for the topic.
• **Test your understanding** sections provide an opportunity to assess your understanding of the key topics by applying what you have learned to short questions. Answers can be found at the back of each chapter.

• **Summary diagrams** complete each chapter to show the important links between topics and the overall content of the paper. These diagrams should be used to check that you have covered and understood the core topics before moving on.

Quality and accuracy are of the utmost importance to us so if you spot an error in any of our products, please send an email to mykaplanreporting@kaplan.com with full details, or follow the link to the feedback form in MyKaplan.

Our Quality Co-ordinator will work with our technical team to verify the error and take action to ensure it is corrected in future editions.

**Icon Explanations**

**Definition** – Key definitions that you will need to learn from the core content.

**Key Point** – Identifies topics that are key to success and are often examined.

**Expandable Text** – Expandable text provides you with additional information about a topic area and may help you gain a better understanding of the core content. Essential text users can access this additional content on-line (read it where you need further guidance or skip over when you are happy with the topic)

**Illustration** – Worked examples help you understand the core content better.

**Test Your Understanding** – Exercises for you to complete to ensure that you have understood the topics just learned.

**Tricky topic** – When reviewing these areas care should be taken and all illustrations and test your understanding exercises should be completed to ensure that the topic is understood.

**On-line subscribers**

Our on-line resources are designed to increase the flexibility of your learning materials and provide you with immediate feedback on how your studies are progressing.
If you are subscribed to our on-line resources you will find:

(1) On-line referenceware: reproduces your Complete or Essential Text on-line, giving you anytime, anywhere access.

(2) On-line testing: provides you with additional on-line objective testing so you can practice what you have learned further.

(3) On-line performance management: immediate access to your on-line testing results. Review your performance by key topics and chart your achievement through the course relative to your peer group.

Ask your local customer services staff if you are not already a subscriber and wish to join.

**Syllabus**

**Syllabus objectives**

We have reproduced the ACCA’s syllabus below, showing where the objectives are explored within this book. Within the chapters, we have broken down the extensive information found in the syllabus into easily digestible and relevant sections, called Content Objectives. These correspond to the objectives at the beginning of each chapter.

**Syllabus learning objective and Chapter references**

**A SPECIALIST COST AND MANAGEMENT ACCOUNTING TECHNIQUES**

1 Activity-based costing

(a) Identify appropriate cost drivers under ABC.\[1\] Ch.2

(b) Calculate costs per driver and per unit using ABC.\[2\] Ch.2

(c) Compare ABC and traditional methods of overhead absorption based on production units, labour hours or machine hours.\[2\] Ch.2

2 Target costing

(a) Derive a target cost in manufacturing and service industries.\[2\] Ch.2

(b) Explain the difficulties of using target costing in service industries. \[2\] Ch.2

(c) Suggest how a target cost gap might be closed.\[2\] Ch.2
3 Life-cycle costing

(a) Identify the costs involved at different stages of the lifecycle.[2] Ch.2
(b) Derive a life cycle cost in manufacturing and service industries. Ch.2
(c) Identify the benefits of life cycle costing. Ch.2

4 Throughput accounting

(a) Discuss and apply the theory of constraints.
(b) Calculate and interpret a throughput accounting ratio (TPAR).[2] Ch.2
(c) Suggest how a TPAR could be improved.[2] Ch.2
(d) Apply throughput accounting to a multi-product decision making problem.[2] Ch.2

5 Environmental accounting

(a) Discuss the issues business face in the management of environmental costs. Ch.2
(b) Describe the different methods a business may use to account for its environmental costs. Ch.2

B DECISION-MAKING TECHNIQUES

1 Relevant cost analysis

(a) Explain the concept of relevant costing. Ch.6
(b) Identify and calculate relevant costs for a specific decision situations from given data. Ch.6
(c) Explain and apply the concept of opportunity costs. Ch.6

2 Cost volume profit analysis

(a) Explain the nature of CVP analysis. Ch.3
(b) Calculate and interpret breakeven point and margin of safety. Ch.3
(c) Calculate the contribution to sales ratio, in single and multi-product situations, and demonstrate an understanding of its use. Ch.3
(d) Calculate target profit or revenue in single and multi-product situations, and demonstrate an understanding of its use. Ch.3

(e) Prepare break even charts and profit volume charts and interpret the information contained within each, including multi-product situations. Ch.3

(f) Discuss the limitations of CVP analysis for planning and decision making. Ch.3

3 Limiting factors

(a) Identify limiting factors in a scarce resource situation and select an appropriate technique. Ch.4

(b) Determine the optimal production plan where an organisation is restricted by a single limiting factor, including within the context of “make” or “buy” decisions. Ch.4

(c) Formulate and solve multiple scarce resource problem both graphically and using simultaneous equations as appropriate. Ch.4

(d) Explain and calculate shadow prices (dual prices) and discuss their implications on decision-making and performance management. Ch.4

(e) Calculate slack and explain the implications of the existence of slack for decision-making and performance management. (Excluding simplex and sensitivity to changes in objective functions.) Ch.4

4 Pricing decisions

(a) Explain the factors that influence the pricing of a product or service. [2] Ch.5

(b) Explain the price elasticity of demand. [1] Ch.5

(c) Derive and manipulate a straight line demand equation. Derive an equation for the total cost function (including volume-based discounts). [2] Ch.5

(d) Calculate the optimum selling price and quantity for an organisation, equating marginal cost and marginal revenue. Ch.5

(e) Evaluate a decision to increase production and sales levels considering incremental costs, incremental revenues and other factors. [2] Ch.5

(f) Determine prices and output levels for profit maximisation using the demand based approach to pricing (both tabular and algebraic methods) Ch.5
(g) Explain different price strategies, including: [2] Ch.5
(i) all forms of cost plus
(ii) skimming
(iii) penetration
(iv) complementary product
(v) product-line
(vi) volume discounting
(vii) discrimination
(viii) relevant cost.

(h) Calculate a price from a given strategy using cost plus and relevant cost. [2] Ch.5

5 Make-or-buy and other short-term decisions

(a) Explain the issues surrounding make vs buy and outsourcing decisions [2] Ch.6

(b) Calculate and compare ‘make’ costs with ‘buy-in’ costs. [2] Ch.6

(c) Compare in-house costs and outsource costs of completing tasks and consider other issues surrounding this decision. [2] Ch.6

(d) Apply relevant costing principles in situations involving make or buy in, shut down, one-off contracts and the further processing of joint products. [2] Ch.6

6 Dealing with risk and uncertainty in decision making

(a) Suggest research techniques to reduce uncertainty, e.g. focus groups, market research. [2] Ch.7

(b) Explain the use of simulation, expected values and sensitivity. [1] Ch.7

(c) Apply expected values and sensitivity to decision making problems. [2] Ch.7

(d) Apply the techniques of maximax, maximin, and minimax regret to decision making problems including the production of profit tables. [2] Ch.7

(e) Draw a decision tree and use it to solve a multi-stage decision problem Ch.7

(f) Calculate the value of perfect information and the value of imperfect information. Ch.7
C  BUDGETING AND CONTROL

1  Budgetary systems

(a) Explain how budgetary systems fit within the performance hierarchy.
   [2] Ch.8
(b) Select and explain appropriate budgetary systems for an organisation (systems to include: top down, bottom up, rolling, zero base, activity base, incremental and feed-forward control).[2] Ch.8
(c) Describe the information used in budget systems and the sources of the information needed.[2] Ch.8
(d) Explain the difficulties of changing a budgetary system.[2] Ch.8
(e) Explain how budget systems can deal with uncertainty in the environment.[2] Ch.8

2  Types of budget

(a) Prepare rolling budgets and activity based budgets.[2] Ch.8
(b) Indicate the usefulness and problems with different budget types (including fixed, flexible, zero-based, activity-based incremental, rolling, top-down bottom up, master, functional).[2] Ch.8
(c) Explain the difficulties of changing the type of budget used.[2] Ch.8

3  Quantitative analysis in budgeting

(a) Analyse fixed and variable cost elements from total cost data (using high/low method). Ch.9
(b) Estimate the learning rate and learning effect.[2] Ch.9
(c) Apply the learning curve to a budgetary problem, including calculations on steady states; Discuss the reservations with the learning curve.[2] Ch.9
(d) Apply expected values and explain the problems and benefits.[2] Ch.9
(e) Explain the benefits and dangers inherent in using spreadsheets in budgeting.[1] Ch.9
4  Standard costing

(a) Explain the use of standard costs.[2] Ch.1
(b) Outline the methods used to derive standard costs and discuss the different types of costs possible.[2] Ch.1
(c) Explain the importance of flexing budgets in performance management.[2] Ch.8, Ch.10
(d) Explain and apply the principle of controllability in the performance management system.[2] Ch.8, Ch.10

5 Material mix and yield variances

(a) Calculate, identify the cause of and explain mix and yield variances.[2] Ch.10
(b) Explain the wider issues involved in changing mix e.g. cost, quality and performance measurement issues.[2] Ch.10
(c) Identify and explain the relationship of the material usage variance with the material and mix and yield variances.[2] Ch.10
(d) Suggest and justify alternative methods of controlling production processes.[2] Ch.10

6 Sales mix and quantity variances

(a) Calculate, identify the cause of, and explain sales mix and quantity variances Ch.10
(b) Identify and explain the relationship of the sales volume variances with the sales mix and quantity variances Ch.10

7 Planning and operational variances

(a) Calculate a revised budget.[2] Ch.10
(b) Identify and explain those factors that could and could not be allowed to revise an original budget.[2] Ch.10
(c) Calculate, identify the cause of and explain planning and operational variances for:
(i) sales (including market size and market share)
(ii) materials
(iii) labour, including the effect of the learning curve.[2] Ch.10
(d) Explain and resolve the manipulation issues in revising budgets.[2] Ch.10
8 Performance analysis and behavioural aspects

(a) Analyse and evaluate past performance using the results of variance analysis.\(^2\) Ch.10
(b) Use variance analysis to assess how future performance of an organisation or business can be improved. Ch.10
(c) Identify the factors which influence behaviour Ch.8
(d) Discuss the issues surrounding setting the difficulty level for a budget Ch.8
(e) Discuss the effect that variances have on staff motivation and action Ch.8
(f) Explain the benefits and difficulties of the participation of employees in the negotiation of targets.\(^2\) Ch.8
(g) Describe the dysfunctional nature of some variances in the modern environment of JIT and TQM Ch.10
(h) Discuss the behavioural problems resulting from using standard costs in rapidly changing environments Ch.8

D PERFORMANCE MEASUREMENT AND CONTROL

1 Performance management information systems

(a) Identify the accounting information requirements and describe the different types of information systems used for strategic planning, management control and operational control and decision making.\(^2\) Ch.14
(b) Define and identify the main characteristics of transaction processing systems; management information systems; executive information systems; and enterprise resource planning systems.\(^2\) Ch.14
(c) Define and discuss the merits of, and potential problems with, open and closed systems with regard to the needs of performance management.\(^2\) Ch.14

2 Sources of management information

(a) Identify the principal internal and external sources of management accounting information.\(^2\) Ch.14
(b) Demonstrate how these principal sources of management information might be used for control purposes. \(^2\) Ch.14
(c) Identify and discuss the data capture and process costs of management accounting information.

(d) Identify and discuss the indirect cost of producing information. [2] Ch.14

(e) Discuss the limitations of using externally generated information. [2] Ch.14

3 Management reports

(a) Discuss the principal controls required in generating and distributing internal information. [2] Ch.14

(b) Discuss the procedures that may be necessary to ensure security of highly confidential information that is not for external consumption. [2] Ch.14

4 Performance Analysis in private sector organisations

(a) Describe and calculate and interpret financial performance indicators (FPIs) for profitability, liquidity and risk in both manufacturing and service businesses. Suggest methods to improve these measures. [2] Ch.11

(b) Describe, calculate and interpret non-financial performance indicators (NFPIs) and suggest methods to improve the performance indicated. [2] Ch.11

(c) Analyse past performance and suggest ways for improving financial and non-financial performance. [2] Ch.11

(d) Explain the causes and problems created by short-termism and financial manipulation of results and suggest methods to encourage a long term view.

(e) Explain and interpret the Balanced Scorecard, and the Building Block model proposed by Fitzgerald and Moon. [2] Ch.11

(f) Discuss the difficulties of target setting in qualitative areas. [2] Ch.11
5 Divisional performance and transfer pricing

(a) Explain the basis for setting a transfer price using variable cost, full cost and the principles behind allowing for intermediate markets.\[2\] Ch.12

(b) Explain how transfer prices can distort the performance assessment of divisions and decisions made.\[2\] Ch.12

(c) Explain the meaning of, and calculate, Return on Investment (ROI) and Residual Income (RI), and discuss their shortcomings.\[2\] Ch.12

(d) Compare divisional performance and recognise the problems of doing so.\[2\] Ch.12

6 Performance analysis in not-for-profit organisations and the public sector

(a) Comment on the problems of having non-quantifiable objectives in performance management.\[2\] Ch.13

(b) Explain how performance could be measured in these sectors.\[2\] Ch.13

(c) Comment on the problems of having multiple objectives in these sectors.\[2\] Ch.13

(d) Outline Value for Money (VFM) as a public sector objective.\[1\] Ch.13

7 External considerations and behavioural aspects

(a) Explain the need to allow for external considerations in performance management. (External considerations to include stakeholders, market conditions and allowance for competitors.)\[2\] Ch.11

(b) Suggest ways in which external considerations could be allowed for in performance management.\[2\] Ch.11

(c) Interpret performance in the light of external considerations.\[2\] Ch.11

(d) Identify and explain the behaviour aspects of performance management.\[2\] Ch.11

The superscript numbers in square brackets indicate the intellectual depth at which the subject area could be assessed within the examination. Level 1 (knowledge and comprehension) broadly equates with the Knowledge module, Level 2 (application and analysis) with the Skills module and Level 3 (synthesis and evaluation) to the Professional level. However, lower level skills can continue to be assessed as you progress through each module and level.
**The examination**

Paper F5, Performance management, seeks to examine candidates' understanding of how to manage the performance of a business.

The paper builds on the knowledge acquired in Paper F2, Management Accounting, and prepares those candidates who will decide to go on to study Paper P5, Advanced performance management, at the Professional level.

There will be calculation and discursive elements to the paper. Generally the paper will seek to draw questions from as many of the syllabus sections as possible.

The examination is a three hour paper (plus 15 minutes reading time). It is comprised of Section A (20 multiple choice questions of 2 marks each) and Section B (3 × 10 mark questions and 2 × 15 mark questions). Total time allowed: 3 hours plus 15 minutes reading and planning time.

**Paper-based examination tips**

Spend the first few minutes of the examination reading the paper and planning your answers. During the reading time you may annotate the question paper but not write in the answer booklet. In particular you should use this time to ensure that you understand the requirements, highlighting key verbs, consider which parts of the syllabus are relevant and plan key calculations.

**Divide the time** you spend on questions in proportion to the marks on offer. One suggestion for this examination is to allocate 1.8 minutes to each mark available, so a 20-mark question should be completed in approximately 36 minutes.

Spend the last five minutes reading through your answers and making any additions or corrections.

If you get completely stuck with a question, leave space in your answer book and return to it later.

If you do not understand what a question is asking, state your assumptions. Even if you do not answer in precisely the way the examiner hoped, you should be given some credit, if your assumptions are reasonable.
You should do everything you can to make things easy for the marker. The marker will find it easier to identify the points you have made if your answers are legible.

**Case studies:** Most questions will be based on specific scenarios. To construct a good answer first identify the areas in which there are problems, outline the main principles/theories you are going to use to answer the question, and then apply the principles / theories to the case. It is essential that you tailor your comments to the scenario given.

**Essay questions:** Some questions may contain short essay-style requirements. Your answer should have a clear structure. It should contain a brief introduction, a main section and a conclusion. Be concise. It is better to write a little about a lot of different points than a great deal about one or two points.

**Computations:** It is essential to include all your workings in your answers. Many computational questions require the use of a standard format. Be sure you know these formats thoroughly before the exam and use the layouts that you see in the answers given in this book and in model answers.

**Reports, memos and other documents:** some questions ask you to present your answer in the form of a report or a memo or other document. So use the correct format – there could be easy marks to gain here.

**Study skills and revision guidance**

This section aims to give guidance on how to study for your ACCA exams and to give ideas on how to improve your existing study techniques.

**Preparing to study**

**Set your objectives**

Before starting to study decide what you want to achieve - the type of pass you wish to obtain. This will decide the level of commitment and time you need to dedicate to your studies.
**Devise a study plan**

Determine which times of the week you will study.

Split these times into sessions of at least one hour for study of new material. Any shorter periods could be used for revision or practice.

Put the times you plan to study onto a study plan for the weeks from now until the exam and set yourself targets for each period of study - in your sessions make sure you cover the course, course assignments and revision.

If you are studying for more than one paper at a time, try to vary your subjects as this can help you to keep interested and see subjects as part of wider knowledge.

When working through your course, compare your progress with your plan and, if necessary, re-plan your work (perhaps including extra sessions) or, if you are ahead, do some extra revision/practice questions.

**Effective studying**

**Active reading**

You are not expected to learn the text by rote, rather, you must understand what you are reading and be able to use it to pass the exam and develop good practice. A good technique to use is SQ3Rs – Survey, Question, Read, Recall, Review:

1. **Survey the chapter** – look at the headings and read the introduction, summary and objectives, so as to get an overview of what the chapter deals with.
2. **Question** – whilst undertaking the survey, ask yourself the questions that you hope the chapter will answer for you.
3. **Read** through the chapter thoroughly, answering the questions and making sure you can meet the objectives. Attempt the exercises and activities in the text, and work through all the examples.
4. **Recall** – at the end of each section and at the end of the chapter, try to recall the main ideas of the section/chapter without referring to the text. This is best done after a short break of a couple of minutes after the reading stage.
5. **Review** – check that your recall notes are correct.

You may also find it helpful to re-read the chapter to try to see the topic(s) it deals with as a whole.
Note-taking

Taking notes is a useful way of learning, but do not simply copy out the text. The notes must:

- be in your own words
- be concise
- cover the key points
- be well-organised
- be modified as you study further chapters in this text or in related ones.

Trying to summarise a chapter without referring to the text can be a useful way of determining which areas you know and which you don't.

Three ways of taking notes:

Summarise the key points of a chapter.

Make linear notes – a list of headings, divided up with subheadings listing the key points. If you use linear notes, you can use different colours to highlight key points and keep topic areas together. Use plenty of space to make your notes easy to use.

Try a diagrammatic form – the most common of which is a mind-map. To make a mind-map, put the main heading in the centre of the paper and put a circle around it. Then draw short lines radiating from this to the main sub-headings, which again have circles around them. Then continue the process from the sub-headings to sub-sub-headings, advantages, disadvantages, etc.

Highlighting and underlining

You may find it useful to underline or highlight key points in your study text - but do be selective. You may also wish to make notes in the margins.

Revision

The best approach to revision is to revise the course as you work through it. Also try to leave four to six weeks before the exam for final revision. Make sure you cover the whole syllabus and pay special attention to those areas where your knowledge is weak. Here are some recommendations:

Read through the text and your notes again and condense your notes into key phrases. It may help to put key revision points onto index cards to look at when you have a few minutes to spare.
Review any assignments you have completed and look at where you lost marks – put more work into those areas where you were weak.

Practise exam standard questions under timed conditions. If you are short of time, list the points that you would cover in your answer and then read the model answer, but do try to complete at least a few questions under exam conditions.

Also practise producing answer plans and comparing them to the model answer.

If you are stuck on a topic find somebody (a tutor) to explain it to you.

Read good newspapers and professional journals, especially ACCA’s Student Accountant – this can give you an advantage in the exam.

Ensure you know the structure of the exam – how many questions and of what type you will be expected to answer. During your revision attempt all the different styles of questions you may be asked.

**Further reading**

You can find further reading and technical articles under the student section of ACCA’s website.
FORMULAE SHEET

Learning curve

\[ y = ax^b \]

Where

- \( y \) = cumulative average time per unit to produce \( x \) units
- \( a \) = the time taken for the first unit of output
- \( x \) = the cumulative number of units produced
- \( b \) = the index of learning (\( \log LR/\log 2 \))
- \( LR \) = the learning rate as a decimal

Demand curve

\[ P = a - bQ \]

- \( P \) = Change in price
- \( b \) = Change in quantity
- \( a \) = price when \( Q = 0 \)
- \( MR = a - 2bQ \)
A Revision of F2 topics

Chapter learning objectives

The contents of this chapter are now assumed knowledge from the F2 syllabus.

Absorption, marginal and standard costing, and the basics of variance analysis, were encountered in F2, Management Accounting.

In the ACCA F5 paper, you will have to cope with the following:

• new, more advanced variances.
• more complex calculations.
• discussion of the results and implications of your calculations.
1 What is the purpose of costing?

In paper F2 we learnt how to determine the cost per unit for a product. We might need to know this cost in order to:

- **Value inventory** – the cost per unit can be used to value inventory in the statement of financial position (balance sheet).
- **Record costs** – the costs associated with the product need to be recorded in the income statement.
- **Price products** – the business will use the cost per unit to assist in pricing the product. For example, if the cost per unit is $0.30, the business may decide to price the product at $0.50 per unit in order to make the required profit of $0.20 per unit.
- **Make decisions** – the business will use the cost information to make important decisions regarding which products should be made and in what quantities.

How can we calculate the cost per unit? There are a number of costing methods available, most of them based on **standard costing**.

**Standard costing**

**What is standard costing?**

A standard cost for a product or service is a predetermined unit cost set under specified working conditions.
The uses of standard costs

The main purposes of standard costs are:

- **Control:** the standard cost can be compared to the actual costs and any differences investigated.
- **Planning:** standard costing can help with budgeting.
- **Performance measurement:** any differences between the standard and the actual cost can be used as a basis for assessing the performance of cost centre managers.
- **Inventory valuation:** an alternative to methods such as LIFO and FIFO.
- **Accounting simplification:** there is only one cost, the standard.

Standard costing is most suited to organisations with:

- mass production of homogenous products
- repetitive assembly work.

The large scale repetition of production allows the average usage of resources to be determined.

Standard costing is less suited to organisations that produce non-homogenous products or where the level of human intervention is high.

### McDonaldisation

Restaurants traditionally found it difficult to apply standard costing because each dish is slightly different to the last and there is a high level of human intervention.

McDonalds attempted to overcome these problems by:

- Making each type of product produced identical. For example, each Big Mac contains a pre-measured amount of sauce and two gherkins. This is the standard in all restaurants.
- Reducing the amount of human intervention. For example, staff do not pour the drinks themselves but use machines which dispense the same volume of drink each time.
Test your understanding 1

Which of the following organisations may use standard costing?

(i) a bank
(ii) a kitchen designer
(iii) a food manufacturer
(a) (i), (ii) and (iii)
(b) (i) and (ii) only
(c) (ii) and (iii) only
(d) (i) and (iii) only

Preparing standard costs

A standard cost is based on the expected price and usage of material, labour and overheads.

Test your understanding 2

K Ltd makes two products. Information regarding one of those products is given below:

Budgeted output/sales for the year: 900 units

Standard details for one unit

| Direct materials      | 40 square metres at $5.30 per square metre |
| Direct wages          | Bonding department: 24 hours at $5.00 per hour |
|                       | Finishing department: 15 hours at $4.80 per hour |
| Variable overhead     | $1.50 per bonding labour hour |
|                       | $1 per finishing labour hour |
| Fixed production overhead | $36,000                      |
| Fixed non-production overhead | $27,000                   |

Note: Variable overheads are recovered (absorbed) using hours, fixed overheads are recovered on a unit basis.
Required:

(a) Prepare a standard cost card for one unit and enter on the standard cost card the following subtotals:
   (i) Prime cost
   (ii) Variable production cost
   (iii) Total production cost
   (iv) Total cost.

(b) Calculate the selling price per unit allowing for a profit of 25% of the selling price.

Types of standard

There are four main types of standard:

Attainable standards

• They are based upon efficient (but not perfect) operating conditions.
• The standard will include allowances for normal material losses, realistic allowances for fatigue, machine breakdowns, etc.
• These are the most frequently encountered type of standard.
• These standards may motivate employees to work harder since they provide a realistic but challenging target.

Basic standards

• These are long-term standards which remain unchanged over a period of years.
• Their sole use is to show trends over time for such items as material prices, labour rates and efficiency and the effect of changing methods.
• They cannot be used to highlight current efficiency.
• These standards may demotivate employees if, over time, they become too easy to achieve and, as a result, employees may feel bored and unchallenged.
Current standards

- These are standards based on current working conditions.
- They are useful when current conditions are abnormal and any other standard would provide meaningless information.
- The disadvantage is that they do not attempt to motivate employees to improve upon current working conditions and, as a result, employees may feel unchallenged.

Ideal standards

- These are based upon perfect operating conditions.
- This means that there is no wastage or scrap, no breakdowns, no stoppages or idle time; in short, no inefficiencies.
- In their search for perfect quality, Japanese companies use ideal standards for pinpointing areas where close examination may result in large cost savings.
- Ideal standards may have an adverse motivational impact since employees may feel that the standard is impossible to achieve.

Preparing standard costs which allow for idle time and waste

Attainable standards are set at levels which include an allowance for:

- Idle time, i.e. employees are paid for time when they are not working.
- Waste, i.e. of materials.

Test your understanding 3

The fastest time in which a batch of 20 ‘spicy meat special’ sandwiches has been made was 32 minutes, with no hold-ups. However, work studies have shown that, on average, about 8% of the sandwich makers’ time is non-productive and that, in addition to this, setup time (getting ingredients together etc.), is 2 minutes.

If the sandwich-makers are paid $4.50 per hour, what is the attainable standard labour cost of one sandwich?
Flexible budgeting

Before introducing the concept of flexible budgeting it is important to understand the following terms:

- **Fixed budget**: this is prepared before the beginning of a budget period for a single level of activity.
- **Flexible budget**: this is also prepared before the beginning of a budget period. It is prepared for a number of levels of activity and requires the analysis of costs between fixed and variable elements.
- **Flexed budget**: this is prepared at the end of the budget period. It provides a more meaningful estimate of costs and revenues and is based on the actual level of output.

Budgetary control compares actual results against expected results. The difference between the two is called a variance.

The actual results may be better (favourable variance) or worse (adverse variance) than expected.

It can be useful to present these figures in a flexible budget statement. (Note: This is not the same as a flexible budget).

**Test your understanding 4**

A business has prepared the following standard cost card based on producing and selling 10,000 units per month:

<table>
<thead>
<tr>
<th></th>
<th>$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selling price</td>
<td>10</td>
</tr>
<tr>
<td>Variable production costs</td>
<td>3</td>
</tr>
<tr>
<td>Fixed production cost</td>
<td>1</td>
</tr>
</tbody>
</table>

Profit per unit: 6
Actual production and sales for month 1 were 12,000 units and this resulted in the following:

<table>
<thead>
<tr>
<th></th>
<th>$000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>125</td>
</tr>
<tr>
<td>Variable production costs</td>
<td>40</td>
</tr>
<tr>
<td>Fixed production costs</td>
<td>9</td>
</tr>
<tr>
<td>Total profit</td>
<td>76</td>
</tr>
</tbody>
</table>

**Required:**

Using a flexible budgeting approach, prepare a table showing the original fixed budget, the flexed budget, the actual results and the total meaningful variances.

**Controllability and performance management**

A cost is controllable if a manager is responsible for it being incurred or is able to authorise the expenditure.

A manager should only be evaluated on the costs over which they have control.

It is worth emphasising that this concept of controllability is an important idea for F5, and will be revisited many times throughout the syllabus.

**Test your understanding 5**

The materials purchasing manager is assessed on:

- total material expenditure for the organisation
- the cost of introducing safety measures, regarding the standard and the quality of materials, in accordance with revised government legislation
- a notional rental cost, allocated by head office, for the material storage area.

**Required:**

Discuss whether these costs are controllable by the manager and if they should be used to appraise the manager.
**Test your understanding 6**

Explain whether a production manager should be accountable for direct labour and direct materials cost variances.

## 2 Traditional costing methods: AC and MC

The next chapter, Chapter 2, focuses on one of the modern costing techniques, ABC. However, in order to understand ABC and the benefits that it can bring, it is useful to start by reminding ourselves of the two main traditional costing methods: Absorption Costing (AC) and Marginal Costing (MC).

These will be referred to again in the *Advanced Variances* chapter.

### Absorption costing

The aim of traditional absorption costing is to determine the full production cost per unit.

```
<table>
<thead>
<tr>
<th>Total cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production costs</td>
</tr>
<tr>
<td>Non-production costs</td>
</tr>
<tr>
<td>Direct (prime) costs</td>
</tr>
<tr>
<td>Indirect costs (production overheads)</td>
</tr>
</tbody>
</table>

- E.g. materials and labour
- E.g. factory rent, supervisor’s salary, electricity, depreciation

- E.g. selling and distribution costs (advertising, delivery) and administrative costs (cleaners, postage)
```
When we use absorption costing to determine the cost per unit, we focus on the production costs only. We can summarise these costs into a cost card:

**Standard Cost Card**
Product Widget, Ref. ABG56A

<table>
<thead>
<tr>
<th>Direct materials</th>
<th>Cost</th>
<th>Requirement</th>
<th>$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material A</td>
<td>$2.00 per kg</td>
<td>6 kgs p.u.</td>
<td>12.00</td>
</tr>
<tr>
<td>Material B</td>
<td>$3.00 per kg</td>
<td>2 kgs p.u.</td>
<td>6.00</td>
</tr>
<tr>
<td>Material C</td>
<td>$4.00 per litre</td>
<td>1 litre</td>
<td>4.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>22.00</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Direct labour</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade I labour</td>
<td>$4.00</td>
<td>3 hours p.u.</td>
<td>12.00</td>
</tr>
<tr>
<td>Grade II labour</td>
<td>$5.40</td>
<td>5 hours p.u.</td>
<td>27.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>61.00</strong></td>
</tr>
</tbody>
</table>

| Variable production overhead | $1.00 | 8 hours | 8.00 |
| Fixed production overhead   | $3.00 | 8 hours | 24.00 |
| **Standard full production cost** | | | **93.00** |

It is relatively easy to estimate the cost per unit for direct materials and labour. In doing so we can complete the first two lines of the cost card. Prime cost is the total of all direct costs.

However, it is much more difficult to estimate the production overhead per unit. This is an indirect cost and so, by its very nature, we do not know how much is contained in each unit.

Therefore, we need a method of attributing the production overheads to each unit. All production overheads must be absorbed into units of production, using a suitable basis, e.g. units produced, labour hours or machine hours.

**The assumption underlying this method of absorption is that overhead expenditure is connected to the volume produced.**
Saturn, a chocolate manufacturer, produces three products:

- The Sky Bar, a bar of solid milk chocolate.
- The Moon Egg, a fondant filled milk chocolate egg.
- The Sun Bar, a biscuit and nougat based chocolate bar.

Information relating to each of the products is as follows:

<table>
<thead>
<tr>
<th></th>
<th>Sky Bar</th>
<th>Moon Egg</th>
<th>Sun Bar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct labour cost per unit ($)</td>
<td>0.07</td>
<td>0.14</td>
<td>0.12</td>
</tr>
<tr>
<td>Direct material cost per unit ($)</td>
<td>0.17</td>
<td>0.19</td>
<td>0.16</td>
</tr>
<tr>
<td>Actual production/sales (units)</td>
<td>500,000</td>
<td>150,000</td>
<td>250,000</td>
</tr>
<tr>
<td>Direct labour hours per unit</td>
<td>0.001</td>
<td>0.01</td>
<td>0.005</td>
</tr>
<tr>
<td>Direct machine hours per unit</td>
<td>0.01</td>
<td>0.04</td>
<td>0.02</td>
</tr>
<tr>
<td>Selling price per unit ($)</td>
<td>0.50</td>
<td>0.45</td>
<td>0.43</td>
</tr>
</tbody>
</table>

Annual production overhead = $80,000

Required:

Using traditional absorption costing, calculate the full production cost per unit and the profit per unit for each product. Comment on the implications of the figures calculated.

Illustration 1 – Absorption costing

Solution

As mentioned, it is relatively easy to complete the first two lines of the cost card. The difficult part is calculating the production overhead per unit, so let’s start by considering this. We need to absorb the overheads into units of production. To do this, we will first need to calculate an overhead absorption rate (OAR):

\[
\text{OAR} = \frac{\text{Production overhead}}{\text{Activity level}}
\]

(this is $80,000, as per the question)

(this must be chosen)
The activity level must be appropriate for the business. Saturn must choose between three activity levels:

- **Units of production** – This would not be appropriate since Saturn produces more than one type of product. It would not be fair to absorb the same amount of overhead into each product.
- **Machine hours or labour hours** – It is fair to absorb production overheads into the products based on the labour or machine hours taken to produce each unit. We must decide if the most appropriate activity level is machine or labour hours. To do this we can look at the nature of the process. Production appears to be more machine intensive than labour intensive because each unit takes more machine hours to produce than it does labour hours. Therefore, the most appropriate activity level is machine hours.
- **To calculate the OAR we need to identify the total activity level for the period i.e. the total machine hours needed to produce all three products.**

**Working – OAR**

\[ \frac{\$80,000 \text{ production overhead}}{0.01 \times 500k + 0.04 \times 150k + 0.02 \times 250k \text{ hours}} = \frac{\$80,000}{16,000 \text{ hours}} = \$5 \text{ per machine hour} \]

We can now absorb these into the units of production:

<table>
<thead>
<tr>
<th>Production overheads ($)</th>
<th>Sky Bar</th>
<th>Moon Egg</th>
<th>Sun Bar</th>
</tr>
</thead>
<tbody>
<tr>
<td>= machine hours per unit × $5</td>
<td>0.05</td>
<td>0.20</td>
<td>0.10</td>
</tr>
</tbody>
</table>
This is the difficult part done. We can now quickly complete the cost card and answer the question:

<table>
<thead>
<tr>
<th></th>
<th>Sky Bar</th>
<th>Moon Egg</th>
<th>Sun Bar</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>Direct labour cost per unit</td>
<td>0.07</td>
<td>0.14</td>
<td>0.12</td>
</tr>
<tr>
<td>Direct material cost per unit</td>
<td>0.17</td>
<td>0.19</td>
<td>0.16</td>
</tr>
<tr>
<td>Production overhead per unit</td>
<td>0.05</td>
<td>0.20</td>
<td>0.10</td>
</tr>
<tr>
<td><strong>Full production cost per unit</strong></td>
<td><strong>0.29</strong></td>
<td><strong>0.53</strong></td>
<td><strong>0.38</strong></td>
</tr>
<tr>
<td>Selling price per unit</td>
<td>0.50</td>
<td>0.45</td>
<td>0.43</td>
</tr>
<tr>
<td><strong>Profit/(loss) per unit</strong></td>
<td><strong>0.21</strong></td>
<td><strong>(0.08)</strong></td>
<td><strong>0.05</strong></td>
</tr>
</tbody>
</table>

**Outcome of absorption costing**

Based on absorption costing, the Sky Bar and the Sun Bar are both profitable. However, the Moon Egg is loss making. Managers would need to consider the future of the Moon Egg. They may look at the possibility of increasing the selling price and/or reducing costs. If this is not possible, they may make the decision to stop selling the product.

However, this may prove to be the wrong decision because absorption costing does not always result in an accurate calculation of the full production cost per unit. Activity Based Costing (ABC) can be a more accurate method of calculating the full production cost per unit and as a result should lead to better decisions.

**3 Under- and over-absorption**

A predetermined overhead absorption rate is used to smooth out seasonal fluctuations in overhead costs, and to enable unit costs to be calculated quickly throughout the year.

\[
\text{Pre-determined overhead absorption rate} = \frac{\text{Budgeted overhead}}{\text{Budgeted volume}}
\]

'Budgeted volume' may relate to total units, direct labour hours, machine hours, etc. If either or both of the actual overhead cost or activity volume differ from budget, the use of this rate is likely to lead to what is known as under-absorption or over-absorption of overheads.
A company budgeted to produce 3,000 units of a single product in a period at a budgeted cost per unit as follows:

<table>
<thead>
<tr>
<th>Costs</th>
<th>$ per unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct costs</td>
<td>17</td>
</tr>
<tr>
<td>Fixed overheads</td>
<td>9</td>
</tr>
<tr>
<td><strong>Total costs</strong></td>
<td><strong>26 per unit</strong></td>
</tr>
</tbody>
</table>

In the period covered by the budget, actual production was 3,200 units and actual fixed overhead expenditure was 5% above that budgeted. All other costs were as budgeted. What was the amount, if any, of over- or under-absorption of fixed overhead?

**Answer**

The budgeted fixed overhead amounts to 3,000 units \times $9 = $27,000.

\[
\text{Over/(under)absorption} = \text{Absorbed overheads} - \text{Incurred overheads}.
\]

| Fixed overhead absorbed (3,200 units \times $9) | 28,800 |
| Fixed overhead incurred ($27,000 \times 1.05)   | 28,350 |
| **Over-absorbed fixed overheads**               | **450** |

What does this mean?

- During the period concerned, overheads will be accounted for as units are made.
- Thus by the end of the period $28,800 of overheads will have been incorporated. The precise location will depend on
  - whether the units concerned have been sold (in which case the costs will have ended up in cost of sales in the Profit and Loss account)
  - or are remaining in closing inventory (in which case the costs will have ended up in the valuation of closing inventory on the Statement of Financial Position).
• At the end of the period the company then determines that the actual overheads are $28,350 so recognise that they have accounted for $450 too many. This amount will need to be reversed out to ensure the correct costs are included.

• The simplest way of dealing with this adjustment is as a separate item in the Profit and Loss account. In this case the adjustment will be a CREDIT of $450.

4 Marginal costing

Marginal costing is the accounting system in which variable costs are charged to cost units and fixed costs of the period are written off in full against the aggregate contribution. Its special value is in recognising cost behaviour, and hence assisting in decision making.

The marginal cost is the extra cost arising as a result of making and selling one more unit of a product or service, or is the saving in cost as a result of making and selling one less unit.

Contribution is the difference between sales value and the variable cost of sales. It may be expressed per unit or in total. It is short for 'Contribution to fixed costs and profits'. Contribution is a key concept we will come back to time and time again in management accounting.

With marginal costing, contribution varies in direct proportion to the volume of the units sold. Profits will increase as sales volume rises, by the amount of extra contribution earned. Since fixed cost expenditure does not alter, marginal costing gives an accurate picture of how a firm's cash flows and profits are affected by changes in sales volumes.

<table>
<thead>
<tr>
<th>Illustration 3 – Marginal costing</th>
</tr>
</thead>
<tbody>
<tr>
<td>A company manufactures only one product called XY. The following information relates to the product:</td>
</tr>
<tr>
<td>Selling price per unit</td>
</tr>
<tr>
<td>Direct material cost per unit</td>
</tr>
<tr>
<td>Direct labour cost per unit</td>
</tr>
<tr>
<td>Variable overhead cost per unit</td>
</tr>
<tr>
<td><strong>Contribution per unit</strong></td>
</tr>
<tr>
<td>Fixed costs for the period are $25,000.</td>
</tr>
</tbody>
</table>
**Required:**

Complete the following table:

<table>
<thead>
<tr>
<th>Level of activity</th>
<th>2,500 units</th>
<th>5,000 units</th>
<th>7,500 units</th>
<th>10,000 units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variable costs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total contribution</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixed costs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total profit/(loss)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contribution per unit</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Profit/(loss) per unit</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Solution**

<table>
<thead>
<tr>
<th>Level of activity</th>
<th>2,500 units</th>
<th>5,000 units</th>
<th>7,500 units</th>
<th>10,000 units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>50,000</td>
<td>100,000</td>
<td>150,000</td>
<td>200,000</td>
</tr>
<tr>
<td>Variable costs</td>
<td>30,000</td>
<td>60,000</td>
<td>90,000</td>
<td>120,000</td>
</tr>
<tr>
<td>Total contribution</td>
<td>20,000</td>
<td>40,000</td>
<td>60,000</td>
<td>80,000</td>
</tr>
<tr>
<td>Fixed costs</td>
<td>25,000</td>
<td>25,000</td>
<td>25,000</td>
<td>25,000</td>
</tr>
<tr>
<td>Total profit/(loss)</td>
<td>(5,000)</td>
<td>15,000</td>
<td>35,000</td>
<td>55,000</td>
</tr>
<tr>
<td>Contribution per unit</td>
<td>$8</td>
<td>$8</td>
<td>$8</td>
<td>$8</td>
</tr>
<tr>
<td>Profit/(loss) per unit</td>
<td>$(2)</td>
<td>$3</td>
<td>$4.67</td>
<td>$5.50</td>
</tr>
</tbody>
</table>

The table illustrates that contribution per unit remains constant at all levels of activity. However, profit per unit changes.

Hence marginal costing is a more useful method than absorption costing for decision making, say when trying to analyse and manage costs. However, marginal costing is less useful for financial reporting – for example, inventory needs to be valued at total production cost, not just variable cost.
5 Advantages and disadvantages of AC and MC

Absorption costing presents the following advantages:

• It includes an element of fixed overheads in inventory values, in accordance with IAS 2.
• Analysing under/over absorption of overheads is a useful exercise in controlling costs of an organisation.
• In small organisations, absorbing overheads into the cost of products is the best way of estimating job costs and profits on jobs.

The main disadvantage of absorption costing is that it is more complex to operate than marginal costing, and it does not provide any useful information for decision making, like marginal costing does.

Marginal costing presents the following advantages:

• Contribution per unit is constant, unlike profit per unit which varies with changes in sales volumes.
• There is no under or over absorption of overheads (and hence no adjustment is required in the income statement).
• Fixed costs are a period cost and are charged in full to the period under consideration.
• Marginal costing is useful in the decision-making process.
• It is simple to operate.

The main disadvantage of marginal costing is that closing inventory is not valued in accordance with IAS 2 principles, and that fixed production overheads are not shared out between units of production, but written off in full instead.
Test your understanding answers

Test your understanding 1

D

A bank and a food manufacturer would have similar repetitive output for which standard costs could be calculated whereas a kitchen designer is likely to work on different jobs specified by the customer.

Test your understanding 2

(a)

<table>
<thead>
<tr>
<th>Direct materials (40 × $5.30)</th>
<th>$212</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct labour:</td>
<td></td>
</tr>
<tr>
<td>Bonding (24 hours × $5.00)</td>
<td>$120</td>
</tr>
<tr>
<td>Finishing (15 hours at $4.80)</td>
<td>$72</td>
</tr>
</tbody>
</table>

(i) **Prime cost**

Variable overhead:
- Bonding (24 hours at $1.50 per hour) $36
- Finishing (15 hours at $1 per hour) $15

(ii) **Variable production cost**

Production overheads ($36,000 ÷ 900) $40

(iii) **Total production cost**

Non-production overheads ($27,000 ÷ 900) $30

(iv) **Total cost**

$525

(b)

Profit ((25/75) × 525) $175

**Price** ($525 + $175) $700
### Test your understanding 3

<table>
<thead>
<tr>
<th></th>
<th>Per batch of 20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ideal time</td>
<td>(92%) 32.0 minutes</td>
</tr>
<tr>
<td>Non-productive idle time</td>
<td>(8%) 2.8 minutes</td>
</tr>
<tr>
<td>Setup time</td>
<td>(100%) 2.0 minutes</td>
</tr>
<tr>
<td>Total time</td>
<td>36.8 minutes</td>
</tr>
<tr>
<td>Total cost @ $4.50/hr</td>
<td>$2.76</td>
</tr>
<tr>
<td>Standard labour cost per sandwich ($2.76/20)</td>
<td>$0.138</td>
</tr>
</tbody>
</table>

### Test your understanding 4

<table>
<thead>
<tr>
<th></th>
<th>Original fixed budget</th>
<th>Flexed budget</th>
<th>Actual results</th>
<th>Meaningful variance = flexed – actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Based on production/sales of:</td>
<td>10,000 units</td>
<td>12,000 units</td>
<td>12,000 units</td>
<td>–</td>
</tr>
<tr>
<td>Sales</td>
<td>10,000 units × $10/ unit = $100,000</td>
<td>12,000 units × $10/ unit = $120,000</td>
<td>$125,000</td>
<td>$5,000 Fav</td>
</tr>
<tr>
<td>Variable production cost</td>
<td>10,000 units × $3/ unit = $30,000</td>
<td>12,000 units × $3/ unit = $36,000</td>
<td>$40,000</td>
<td>$4,000 Adv</td>
</tr>
<tr>
<td>Fixed production cost</td>
<td>10,000 units × $1/ unit = $10,000</td>
<td>As per original budget = $10,000</td>
<td>$9,000</td>
<td>$1,000 Fav</td>
</tr>
<tr>
<td>Profit</td>
<td>$60,000</td>
<td>$74,000</td>
<td>$76,000</td>
<td>$2,000 Fav</td>
</tr>
</tbody>
</table>
The total material expenditure for the organisation will be dependent partly on the prices negotiated by the purchasing manager and partly by the requirements and performance of the production department. If it is included as a target for performance appraisal the manager may be tempted to purchase cheaper material which may have an adverse effect elsewhere in the organisation.

The requirement to introduce safety measures may be imposed but the manager should be able to ensure that implementation meets budget targets.

A notional rental cost is outside the control of the manager and should not be included in a target for performance appraisal purposes.

The production manager will be responsible for managing direct labour and direct material usage.

However, the manager may not be able to influence:

- the cost of the material
- the quality of the material
- the cost of labour
- the quality of labour.

Performance should be measured against the element of direct cost which the manager can control.