

7

Marginal and absorption costing

this chapter covers...

This chapter focuses on the costing methods of marginal and absorption costing and compares the profit made by a business under each method. The chapter concludes with the layout of a manufacturing account and statement of profit or loss (income statement) and where the different types of inventory – raw materials, work-in-progress, finished goods – are shown in the financial statements.

This chapter explains:

- *the different treatment of product costs and period costs in marginal costing and absorption costing*
- *how marginal costing works, including the calculation of contribution, and its role in short-term decision-making*
- *how absorption costing works, including the valuation of closing inventory*
- *a comparison of profits when marginal costing and absorption costing are used*
- *the layout of*
 - *a manufacturing account to show production cost*
 - *a statement of profit or loss to show profit for the year*

MARGINAL AND ABSORPTION COSTING SYSTEMS

These two costing systems are often used in cost accounting, but for different purposes:

- marginal costing – helps with short-term decision-making
- absorption costing – is used to calculate inventory valuations and profit calculations in financial statements

The use of each system is dependent on the information needs of the business or organisation:

- ‘can we afford to sell 1,000 units of our product each month to Megastores Limited at a discount of 20 per cent?’ (use marginal costing)
- ‘what profit have we made this year?’ (use absorption costing)

These costing systems use the same costs, but they are treated differently according to their behaviour. We will now look at each of these costing systems in turn and then make a comparison between them.

MARGINAL COSTING

Marginal cost is the cost of producing one extra unit of output

To help with short-term decision-making, costs are classified by their behaviour as either variable costs or fixed costs (with semi-variable costs being split between their fixed and variable parts). Such a classification of costs is used in marginal costing to work out how much it costs to produce each extra unit of output.

Marginal cost is often – but not always – the total of the variable costs of producing a unit of output. For most purposes, marginal costing is not concerned with *fixed period costs* (such as the rent of a factory); instead it is concerned with *variable product costs* – direct materials, direct labour, direct expenses, and variable production overheads – which increase as output increases. For most decision-making, the marginal cost of a unit of output is, therefore, the variable cost of producing one more unit.

Knowing the marginal cost of a unit of output enables the managers of a business to focus on the contribution provided by each unit. The contribution is the sales revenue after marginal/variable product costs have been paid. The contribution formula is:

$$\text{selling price less variable cost} = \text{contribution}$$

Contribution can be calculated on a per unit basis (as here), or for a batch of output (eg 1,000 units), or for a whole business.

It follows that the difference between the sales revenue and the variable costs of the units sold in a period is the total contribution that the sales of all the units in the period make towards the fixed period costs of the business. Once these are covered, the remainder of the contribution is profit.

Thus a business can work out its profit, using a marginal costing statement, for any given period from the total contribution and fixed costs figures:

$$\text{total contribution less total fixed costs} = \text{profit}$$

A marginal costing statement can be prepared in the following format:

	£
Sales revenue	x
<i>less</i> Variable costs	<u>x</u>
<i>equals</i> Contribution	x
<i>less</i> Fixed costs	<u>x</u>
<i>equals</i> PROFIT	<u>x</u>

Note from the marginal costing statement how the contribution goes firstly towards the fixed costs and, when they have been covered, secondly contributes to profit.

The relationship between marginal costing, contribution and profit is shown in the Case Study which follows.

Case Study

WYVERN BIKE COMPANY: MARGINAL COSTING

situation

The Wyvern Bike Company makes 100 bikes each week and its costs are as follows:

Direct materials	£4,000
Direct labour	£5,000
Production overheads	£5,000

Investigations into the behaviour of costs has revealed the following information:

- direct materials are variable costs
- direct labour is a variable cost
- of the production overheads, £2,000 is a fixed cost, and the remainder is a variable cost

The selling price of each bike is £200.

As an accounts assistant at the Wyvern Bike Company, you are asked to:

- calculate the marginal cost of producing each bike
- show the expected contribution per bike
- prepare a marginal costing statement to show clearly the total contribution and the total profit each week

solution

Marginal cost per bike

Variable costs per unit:	£
Direct materials ($£4,000 \div 100$)	40
Direct labour ($£5,000 \div 100$)	50
Production overheads ($£3,000^* \div 100$)	30
Marginal cost per bike	<u>120</u>
* £5,000 – £2,000 fixed costs	

Contribution per bike

	Selling price per bike	200
<i>less</i>	Variable cost per bike	<u>120</u>
<i>equals</i>	Contribution per bike	<u>80</u>

Marginal costing statement

	£	£
	Sales $£200 \times 100$ bikes	20,000
<i>less</i>	Variable costs:	
	Direct materials	4,000
	Direct labour	5,000
	Production overheads	<u>3,000</u>
		<u>12,000</u>
<i>equals</i>	Total contribution	8,000
<i>less</i>	Fixed costs (production overheads)	<u>2,000</u>
<i>equals</i>	Profit for the week	<u>6,000</u>

advantages of a marginal costing statement

A marginal costing statement is of benefit to the managers of a business because:

- contribution, ie selling price less variable cost, is clearly identified
- with the marginal cost of output identified, the managers can focus on the contribution provided by the output
- the effect on costs of changes in sales revenue can be calculated
- it helps with short-term decision-making in the forms of
 - break-even analysis
 - margin of safety
 - target profit
 - contribution sales ratio
 - limiting factors
 - ‘special order’ pricing

We will look at the role of marginal costing in short-term decision-making in Chapter 9.

ABSORPTION COSTING

Absorption costing absorbs the costs of the business amongst the cost units.

Absorption costing answers the question, ‘What does it cost to make one unit of output?’

The absorption cost of a unit of output is made up of the following costs:

	£
Direct materials	x
<i>add</i> Direct labour	x
<i>add</i> Direct expenses	x
<i>add</i> Production overheads (fixed and variable)	x
<i>equals</i> ABSORPTION COST	<u>x</u>

Note that the production overheads comprise the factory costs of indirect materials, indirect labour, and indirect expenses.

Case Study

WYVERN BIKE COMPANY: ABSORPTION COSTING

situation

The Wyvern Bike Company makes 100 bikes each week and its costs are as follows:

Direct materials	£4,000
Direct labour	£5,000
Production overheads	£5,000

The selling price of each bike is £200.

As an accounts assistant at the Wyvern Bike Company, you are asked to:

- calculate the absorption cost of producing each bike
- calculate the total profit each week

solution

Absorption cost per bike

Total costs per week:	£
Direct materials	4,000
Direct labour	5,000
Production overheads	<u>5,000</u>
Total cost	<u>14,000</u>

The absorption cost of producing one bike is:

$$\frac{\text{Total cost}}{\text{Units of output}} = \frac{\text{£14,000}}{100 \text{ bikes}} = \text{£140 per bike}$$

Profit each week

	Selling price (100 bikes x £200)	20,000
<i>less</i>	Total cost	<u>14,000</u>
<i>equals</i>	Profit for the week	<u>6,000</u>

Conclusion

Profit for the week of £6,000 is the same as with the marginal costing method, so we could say 'Does it matter whether we use marginal or absorption costing?' The answer to this is that it does:

- marginal costing, with its focus on variable costs and contribution, is useful for short-term decision-making
- absorption costing is a simple method of calculating the cost of output and is used in financial statements for inventory valuation

As the Case Study shows, each cost unit bears an equal proportion of the costs of the production overheads of the business. Because of its simplicity, absorption costing is a widely used system which tells us how much it costs to make one unit of output. It works well where the cost units are identical, eg 100 identical bikes, but is less appropriate where some of the cost units differ in quality, eg 100 bikes, of which 75 are standard models and 25 are handbuilt to the customers' specifications. It also ignores the effect of changes in the level of output on the cost structure. For example, if the bike manufacturer reduces output to 50 bikes a week:

- will direct materials remain at £40 per bike? (buying materials in smaller quantities might mean higher prices)
- will direct labour still be £50 per bike? (with lower production, the workforce may not be able to specialise in certain jobs, and may be less efficient)
- will the production overheads remain at £5,000? (perhaps smaller premises can be used and the factory rent reduced)

MARGINAL AND ABSORPTION COSTING COMPARED

Marginal costing tells the managers of a business or organisation the cost of producing one extra unit of output. Nevertheless, we must always remember that one of the objectives of the costing system is to ensure that all the costs of a business or organisation are recovered by being charged to production. This is achieved by means of overhead absorption (see Chapter 5). We will now make a comparison between marginal and absorption costing:

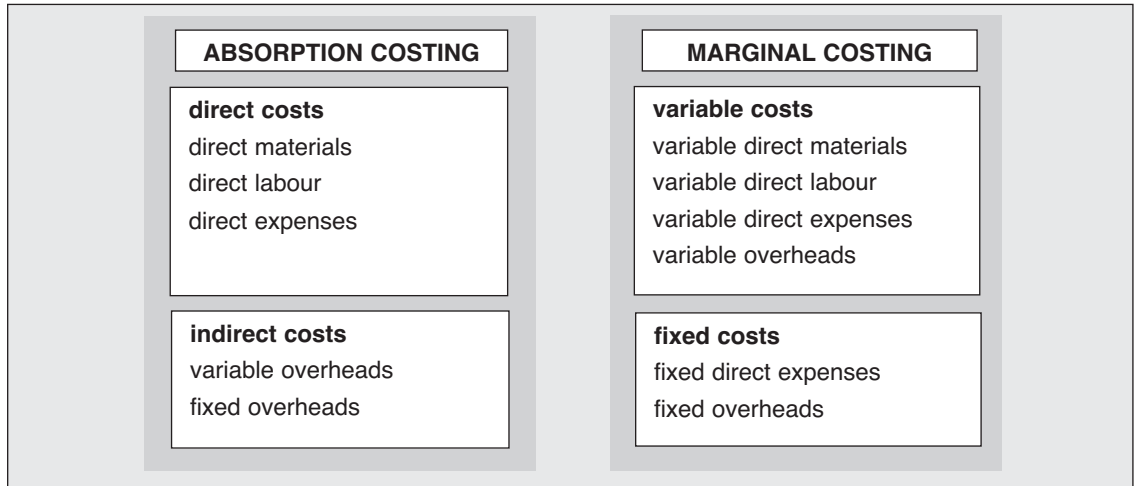
■ *marginal costing*

Marginal costing recognises that fixed period costs vary with time rather than activity, and identifies the variable production cost of one extra unit. For example, the rent of a factory relates to a certain time period, eg one month, and remains unchanged whether 100 units of output are made or whether 500 units are made (always assuming that the capacity of the factory is at least 500 units); by contrast, the production of one extra unit will incur an increase in variable costs, ie direct materials, direct labour, direct expenses (if any), and variable overheads – this increase is the *marginal cost*.

■ *absorption costing*

This technique absorbs all production costs into each unit of output through the use of an overhead absorption rate (see Chapter 5). Therefore the more units that are produced, the cheaper will be the cost per unit – because the overheads are spread over a greater number of units.

The diagram below demonstrates how the terms in marginal costing relate to the same production costs as those categorised under absorption costing terms. As noted above, when using marginal costing it is the behaviour of the cost – fixed or variable – that is important, not the origin of the cost.



The table on the next page gives a comparison between marginal costing and absorption costing, including a note on the usefulness and the limitations of each.

marginal and absorption costing: profit comparisons

Because of the different ways in which marginal costing and absorption costing treat fixed period costs, the two techniques produce different levels of profit when there is a closing inventory figure. This is because, under marginal costing, the closing inventory is valued at variable production cost; by contrast, absorption cost includes a share of fixed production costs in the closing inventory valuation. This is illustrated in the Case Study which follows, looking at the effect of using marginal costing and absorption costing on the statement of profit or loss of a manufacturing business.

Note that the marginal cost approach is used to help with short-term decision-making (see Chapter 9). However, for financial statements, absorption costing must be used for inventory valuation purposes in order to comply with IAS 2 (see page 44). Under IAS 2, *Inventories*, the closing inventory valuation is based on the costs of direct materials, direct labour, direct expenses (if any), and production overheads. Note that non-production overheads are not included, as they are charged in full to the statement of profit or loss in the year to which they relate.

COMPARISON OF MARGINAL AND ABSORPTION COSTING

	marginal costing	absorption costing
main use	<ul style="list-style-type: none"> to help with short-term decision-making (see Chapter 9) in the forms of <ul style="list-style-type: none"> break-even analysis margin of safety target profit contribution sales ratio limiting factors 'special order' pricing 	<ul style="list-style-type: none"> to calculate profit to calculate inventory valuation for financial statements
how does it work?	<ul style="list-style-type: none"> costs are classified as either fixed or variable contribution to fixed costs is calculated as selling price less variable costs 	<ul style="list-style-type: none"> overheads are charged to output through an overhead absorption rate, often on the basis of direct labour hours or machine hours
main focus	<ul style="list-style-type: none"> marginal cost contribution 	<ul style="list-style-type: none"> all overheads charged to output calculating profit calculating inventory values
usefulness	<ul style="list-style-type: none"> concept of contribution is easy to understand useful for short-term decision-making, but no consideration of overheads 	<ul style="list-style-type: none"> acceptable under IAS 2, <i>Inventories</i> appropriate for traditional industries where overheads are charged to output on the basis of direct labour hours or machine hours
limitations	<ul style="list-style-type: none"> costs have to be identified as either fixed or variable all overheads have to be recovered, otherwise a loss will be made not acceptable under IAS 2, <i>Inventories</i> calculation of selling prices may be less accurate than other costing methods 	<ul style="list-style-type: none"> not as useful in short-term decision-making as marginal costing may provide less accurate basis for calculation of selling prices where overheads are high and complex in nature

**Case
Study****CHAIRS LIMITED:
MARGINAL AND ABSORPTION COSTING****situation**

Chairs Limited commenced business on 1 January 20-7. It manufactures a special type of chair designed to alleviate back pain. Information on the first year's trading is as follows:

number of chairs manufactured	5,000
number of chairs sold	4,500
selling price	£110 per chair
direct materials	£30 per chair
direct labour	£40 per chair
fixed production overheads	£100,000

The directors ask for your help in producing profit statements using the marginal costing and absorption costing methods. They say that they will use 'the one that shows the higher profit' to the company's bank manager.

solution

CHAIRS LIMITED				
Statement of profit or loss for the year ended 31 December 20-7				
	MARGINAL COSTING		ABSORPTION COSTING	
	£	£	£	£
Sales revenue at £110 each		495,000		495,000
Variable costs				
Direct materials at £30 each	150,000		150,000	
Direct labour at £40 each	<u>200,000</u>		<u>200,000</u>	
	350,000			
Less Closing inventory (marginal cost)				
500 chairs at £70 each	<u>35,000</u>			
	315,000			
Fixed production overheads	<u>100,000</u>		<u>100,000</u>	
			450,000	
Less Closing inventory (absorption cost)				
500 chairs at £90 each			<u>45,000</u>	
Less Cost of sales		<u>415,000</u>		<u>405,000</u>
PROFIT		<u>80,000</u>		<u>90,000</u>

Tutorial notes:

- Closing inventory is always calculated on the basis of this year's costs:
marginal costing, variable costs only, ie $\pounds 30 + \pounds 40 = \pounds 70$ per chair
absorption costing, variable and fixed costs, ie $\pounds 450,000 \div 5,000 \text{ chairs} = \pounds 90$ per chair
- The difference in the profit figures is caused only by the closing inventory figures: $\pounds 35,000$ under marginal costing and $\pounds 45,000$ under absorption costing – the same costs have been used, but fixed production overheads have been treated differently.
- Only fixed production overheads are dealt with differently using the techniques of marginal and absorption costing – both methods charge non-production overheads in full to the statement of profit or loss in the year to which they relate.

With marginal costing, the full amount of the fixed production overheads has been charged in this year's statement of profit or loss; by contrast, with absorption costing, part of the fixed production overheads (here, $\pounds 10,000$) has been carried forward in the inventory valuation.

With regard to the directors' statement that they will use 'the one that shows the higher profit', the following points should be borne in mind:

- A higher profit does not mean more money in the bank.
- The two methods simply treat fixed production overheads differently and, in a year when there is no closing inventory, total profits to date are exactly the same – but they occur differently over the years. Over time, profits are identical under both methods.
- For financial statements, Chairs Limited must use the absorption cost inventory valuation of $\pounds 45,000$ in order to comply with IAS 2, *Inventories*.

THE USE OF A MANUFACTURING ACCOUNT

Now that we have seen how a manufacturing business uses absorption costing to value its closing inventory, we can turn our attention to the year-end financial statements and, in particular, the use of a *manufacturing account*.

For preparing financial statements a business needs to have an accounting system that records the costs and revenues for its output, and then shows the profit or loss that has been made for the accounting period. For a business such as a retailer that buys and sells goods, without carrying out any production processes, the accounting system is relatively simple – the figure for revenue is deducted from the amount of purchases (after allowing for changes in the value of opening and closing inventories) and the amount of overheads; a profit is made when revenue exceeds the total costs. For a

manufacturer, though, the costs are more complex as they comprise the direct and indirect costs of materials, labour and expenses; also, a manufacturer will invariably have opening and closing inventory in three different forms – direct materials, work-in-progress and finished goods.

In its year-end financial statements a manufacturer prepares:

- a manufacturing account, which shows production (factory) cost
- a statement of profit or loss, which shows profit for the period

The financial statements, which are part of the double-entry system, use the following outline:

MANUFACTURING ACCOUNT		Direct materials
	<i>add</i>	Direct labour
	<i>add</i>	Direct expenses
	<i>equals</i>	PRIME COST
	<i>add</i>	Production overheads
	<i>equals</i>	PRODUCTION (FACTORY) COST
STATEMENT OF PROFIT OR LOSS		Sales revenue
	<i>less</i>	Production (factory) cost
	<i>equals</i>	GROSS PROFIT
	<i>less</i>	Non-production overheads, eg
		<ul style="list-style-type: none"> • selling and distribution expenses • administration expenses • finance expenses
	<i>equals</i>	PROFIT FOR THE PERIOD

notes

- Adjustments have to be made to allow for changes in the value of inventory at the start of the accounting period (opening inventory) and at the end of the accounting period (closing inventory) for:
 - direct materials, in the manufacturing account
 - work-in-progress (or partly manufactured goods), in the manufacturing account
 - finished goods, in the statement of profit or loss

- The statement of profit or loss shows two levels of profit:
 - gross profit, the difference between selling price and production cost (after allowing for changes in the value of opening and closing inventory)
 - profit for the year, the profit after all costs have been deducted and which belongs to the owner(s) of the business
- Certain expenses might be apportioned on an appropriate basis between the manufacturing account and the statement of profit or loss – for example, rent and rates might be apportioned 75 per cent to the factory (production overheads) and 25 per cent to the office (non-production overheads)

An example of a manufacturing account and statement of profit or loss is shown on the next page.

Chapter Summary

- Marginal costing classifies costs by their behaviour – variable product costs or fixed period costs. Such a classification is used to cost units of output on the basis of their variable (or marginal) costs.
- Marginal costing helps with short-term decision-making.
- Absorption costing absorbs the costs of the business amongst the cost units by means of overhead absorption rates. It is used to cost units of output to calculate inventory valuations for financial statements and to calculate profit.
- A manufacturing account is a financial statement which shows prime cost and production (factory) cost.
- A statement of profit or loss shows non-production overheads and profit for the year of the business.

Key Terms

marginal cost	the cost of producing one extra unit of output
contribution	selling price – variable cost
absorption cost	the costs of the business are absorbed amongst the cost units through the use of an overhead absorption rate
manufacturing account	an account – part of the double-entry system – which brings together the elements of cost that make up production (factory) cost

ALPHA MANUFACTURING COMPANY			
MANUFACTURING ACCOUNT AND STATEMENT OF PROFIT OR LOSS			
for the year ended 31 December 20-4			
	£		£
Opening inventory of direct materials			5,000
Add Purchases of direct materials			50,000
			<u>55,000</u>
Less Closing inventory of direct materials			6,000
DIRECT MATERIALS USED			<u>49,000</u>
Direct labour			26,000
Direct expenses			<u>2,500</u>
PRIME COST			<u>77,500</u>
Add Production (factory) overheads:			
Indirect materials	2,000		
Indirect labour	16,000		
Indirect expenses:			
Rent of factory	5,000		
Depreciation of factory machinery	10,000		
Factory light and heat	<u>4,000</u>		
			<u>37,000</u>
			114,500
Add Opening inventory of work-in-progress			<u>4,000</u>
			118,500
Less Closing inventory of work-in-progress			<u>3,000</u>
PRODUCTION (FACTORY) COST OF GOODS MANUFACTURED			<u>115,500</u>
Sales revenue			195,500
Opening inventory of finished goods	6,500		
Production (factory) cost of goods manufactured	<u>115,500</u>		
	122,000		
Less Closing inventory of finished goods	<u>7,500</u>		
COST OF SALES			<u>114,500</u>
Gross profit			<u>81,000</u>
Less Non-production overheads:			
Selling and distribution expenses	38,500		
Administration expenses	32,000		
Finance expenses	<u>3,500</u>		
			<u>74,000</u>
Profit for the year			<u>7,000</u>

Note: a layout for a manufacturing account and statement of profit or loss is given in the Appendix.

Activities

- 7.1** Coffeeworks Limited manufactures coffee machines for domestic use. The management of the company is considering next year's production and has asked you to help with certain financial decisions.

The following information is available:

Selling price (per machine)	£80
Direct materials (per machine)	£25
Direct labour (per machine)	£20
Fixed production overheads	£270,000 per year

The company is planning to manufacture 15,000 coffee machines next year.

- (a) calculate the marginal cost per coffee machine
- (b) calculate the absorption cost per coffee machine
- (c) prepare a statement of profit or loss to show the profit or loss if 15,000 coffee machines are sold

- 7.2** Cook-It Limited makes garden barbecues. The management of the company is considering the production for next year and has asked for help with certain financial decisions.

The following information is available:

Selling price (per barbecue)	£90
Direct materials (per barbecue)	£30
Direct labour (per barbecue)	£25
Fixed production overheads	£150,000 per year

The company is planning to manufacture 10,000 barbecues next year.

Required

You are to calculate:

- the marginal cost per barbecue
- the absorption cost per barbecue
- the profit or loss if 10,000 barbecues are sold

- 7.3** Maxxa Limited manufactures one product, the Maxx. For the month of January 20-7 the following information is available:

Number of units manufactured	4,000
Number of units sold	3,000
Selling price	£8 per unit
Direct materials for month	£5,000
Direct labour for month	£9,000
Fixed production overheads for month	£6,000

There was no finished goods inventory at the start of the month. Both direct materials and direct labour are variable costs.

Required:

You are to produce statements of profit or loss using marginal costing and absorption costing methods.

- 7.4** Activtoys Limited commenced business on 1 January 20-1. It manufactures the 'Activ', an outdoor climbing frame. Information on the first year's trading is as follows:

Number of climbing frames manufactured	1,500
Number of climbing frames sold	1,300
Selling price	£125 per frame
Direct materials	£25 per frame
Direct labour	£30 per frame
Fixed production overheads	£82,500

Required

- (a) The directors ask for your help in producing statements of profit or loss using the marginal costing and absorption costing methods. They say that they will use "the one that gives the higher profit" to show to the company's bank manager.
- (b) Write a note to the directors explaining the reason for the different profit figures and commenting on their statement.

- 7.5** Durning Limited manufactures one product, the Durn. For the month of April 20-4 the following information is available:

Number of units manufactured	10,000
Number of units sold	8,000
Selling price	£4 per unit
Direct materials for month	£8,000
Direct labour for month	£16,000
Fixed production overheads for month	£10,000

There was no finished goods inventory at the start of the month. Both direct materials and direct labour are variable costs.

Required

- (a) produce statements of profit or loss for April 20-4, using:
- marginal costing
 - absorption costing
- (b) explain briefly the reason for the difference between recorded profits under the alternative costing methods

- 7.6** Which one of the following does not appear in a manufacturing account?

- (a) depreciation of factory machinery
- (b) indirect labour
- (c) depreciation of office equipment
- (d) factory light and heat

Answer (a) or (b) or (c) or (d)

- 7.7** For a manufacturing business, which type of inventory is recorded in the statement of profit or loss?

- (a) raw materials
- (b) work-in-progress
- (c) partly manufactured goods
- (d) finished goods

Answer (a) or (b) or (c) or (d)

- 7.8** Allocate the following costs to either the manufacturing account or the statement of profit or loss by ticking the appropriate column in the table below:

	Manufacturing account	Statement of profit or loss
(a) factory rent		
(b) production supervisors' wages		
(c) insurance of factory buildings		
(d) depreciation of office equipment		
(e) sales commission		
(f) direct materials purchased		
(g) advertising		

- 7.9** The following figures relate to the accounts of Crown Heath Manufacturing Company for the year ended 31 December 20-6:

	£
Inventories at 1 January 20-6:	
Direct materials	10,500
Finished goods	4,300
Inventories at 31 December 20-6:	
Direct materials	10,200
Finished goods	3,200
Expenditure during year:	
Purchases of direct materials	27,200
Factory wages – direct	12,600
Factory wages – indirect	3,900
Factory rent and rates	1,200
Factory power	2,000
Depreciation of factory machinery	900
Repairs to factory buildings	300
Sundry factory expenses	900
Non-production overheads	6,500
Revenue for the year	60,400

You are to prepare the year end:

- manufacturing account
- statement of profit or loss

Note: a layout for a manufacturing account and statement of profit or loss is given in the Appendix.

7.10 The following figures relate to the accounts of Barbara Francis, who runs a furniture manufacturing business, for the year ended 31 December 20-7:

	£
Inventory of direct materials at 1 January 20-7	31,860
Inventory of direct materials at 31 December 20-7	44,790
Inventory of finished goods at 1 January 20-7	42,640
Inventory of finished goods at 31 December 20-7	96,510
Purchases of direct materials	237,660
Revenue for the year	796,950
Rent and rates	32,920
Manufacturing wages	234,630
Manufacturing power	7,650
Manufacturing heat and light	2,370
Manufacturing expenses and maintenance	8,190
Salaries	138,700
Advertising	22,170
Office expenses	7,860
Depreciation of plant and machinery	7,450

Rent and rates are to be apportioned 75 per cent to manufacturing and 25 per cent to administration.

You are to prepare the year end:

- manufacturing account
- statement of profit or loss

Note: a layout for a manufacturing account and statement of profit or loss is given in the Appendix.

- 7.11** The following figures relate to the accounts of Ryedale Limited, a manufacturing business, for the year ended 31 October 20-4:

	£
Inventory of direct materials at 1 November 20-3	41,210
Inventory of direct materials at 31 October 20-4	46,380
Inventory of work-in-progress at 1 November 20-3	7,200
Inventory of work-in-progress at 31 October 20-4	8,450
Inventory of finished goods at 1 November 20-3	29,470
Inventory of finished goods at 31 October 20-4	38,290
Purchases of direct materials	311,050
Revenue for the year	874,360
Rent and rates	35,640
Factory wages – direct	180,860
Factory wages – indirect	45,170
Factory power	12,040
Factory heat and light	5,030
Factory sundry expenses and maintenance	10,390
Administration salaries	154,610
Advertising	30,780
Office expenses	10,390
Depreciation of factory plant and machinery	12,500
Depreciation of office equipment	2,500

Additional information:

- factory power is to be treated as a production overhead
- rent and rates are to be allocated 75% to manufacturing and 25% to administration

You are to prepare the year end:

- manufacturing account
- statement of profit or loss

Note: a layout for a manufacturing account and statement of profit or loss is given in the Appendix.