Important materials update

From Monday 15th April 2024, the Principles of Costing assessment will only accept spreadsheet formulas in certain stipulated formats. This is to enable the assessment to be fully computer marked. It is important to understand that just because something works in Excel, doesn't mean it will be marked correct in your assessment!

The guidance, which can be accessed via the references panel in the assessment, is as follows:

You should:

- Manually enter cell references to relevant figures in the table.
- Use standard round brackets ( ) where relevant.

You should not:

- Use directly entered numbers in place of cell references.
- Use PRODUCT in formulas for multiplication.
- Use individual cell references (e.g. B1+B2+B3) within SUM functions.
- Include unnecessary positive/negative signs to modify a calculation.
- Include unnecessary spaces or commas.
- Include unnecessary zeroes within cell references, e.g. A01 instead of A1.
- Include additional cell references not relevant to the calculation.

In the syllabus specification and the practice assessment solutions, the AAT have given some examples of formulas that they would not accept. This information is not accessible within the assessment, so we recommend that you spend some time looking through this.

Syllabus specification

Students will **NOT** be credited for formulas that include:

- unnecessary spaces
- commas
  - for example: =SUM(B2,C2) rather than =SUM(B2:C2)
- square brackets [ ] or curly brackets { } – learners **must** use ( )
- use of brackets to reference single cells
  - for example =SUM(B1+B2+B3), rather than =SUM(B1:B3)
- PRODUCT in formulas for multiplication
- numbers in place of cell references
- redundant references to cells not required for the calculation
- using unnecessary positives/negatives to begin or modify a calculation
  - for example, expressing =C11-B11 as =+C11-B11 or =-(B11-C11)
- adding 0s to cell references
  - for example A01 or B09, rather than A1 or B9

Practice Assessment Solutions

The AAT practice assessments and mark schemes can be accessed on the AAT's Learning Portal.

Examples of incorrect formulas (with additional explanations from us) are as follows:

Cell	Examples of incorrect formulas	Explanations
Practice assessment 1:		
Cell B11	=SUM(B12:B15) =SUM(B12+B13+B14+B15) =B12+B13+B14+B15	In this cell, you are calculating the budgeted revenue figure. The correct formula is: =B3*B4 or =B4*B3 or =(B3*B4) or =(B4*B3). B3 contains the selling price and B4 contains the units, so you need to multiply these together to get: £30 x 5,000 units = £150,000. The incorrect examples demonstrate different ways of getting to the same number by using revenue as a balancing figure in the calculation of profit in cells B12 to B15. E.g. £28,000 + £34,500 + £50,000 + £37,500 = £150,000. Even though you have got to the right answer, you have gone about it in the wrong way. You were told to use the information in cells A1:E8 to complete the table.
Cell B15	=B11-SUM(B12+B13+B14) =(B3*B4)-SUM(B12+B13+B14) =(B4*B3)-SUM(B12+B13+B14)	In this cell, you are calculating the budgeted profit/loss by taking revenue minus all of the costs. There are lots of acceptable answers (too many to list here), which you can see in the practice assessment solutions. Let's go through the incorrect answers: =B11-SUM(B12+B13+B14) is incorrect because you should not use individual cell references within SUM functions. If you want to use individual cell references, you can use a formula such as =B11-B12-B13-B14 or =B11-(B12+B13+B14). However if you want to use =SUM, you need to use a cell range using a colon, e.g. =B11-SUM(B12:B14). The other two incorrect examples are using a formula to calculate revenue at the start, followed by a SUM function using individual cell references to calculate the costs. The revenue calculation at the start is fine. The problem is the SUM function using individual cell references, for the same reason as the first example.
Cell D11	=-B11-C11 =(-B11-C11)	In this cell, you are calculating the revenue variance by taking actual revenue (in cell C11) minus budgeted revenue (in cell B11). The correct formula is =C11-B11 or =(C11-B11). The incorrect examples are using unnecessary negatives to begin or modify the calculation. You need to rearrange the calculation to avoid the need for the double negative.

Cell E11		In this cell, you are calculating the variance (in cell D11) as a percentage of the budgeted figure (in cell B11). The correct formula is =D11/B11*100 (or a variation of this, see the AAT solutions for the full list of acceptable answers). There are no incorrect formulas to explain for this cell, but it is worth noting that you need to include *100 in your formula. This differs from Excel, where you are not required to do this when calculating a percentage.
Practice assessment 2:		
Cell B10	=C2*6000 =35*B5	In this cell, you are calculating the budgeted revenue figure. The correct formula is: =C2*B5 or =B5*C2 or =(C2*B5) or =(B5*C2). C2 contains the selling price and B5 contains the units, so you need to multiply these together. The two incorrect examples are wrong because they contain numbers in place of cell references.
Cell B11	=1500*25 =25*1500	In this cell, you are calculating the budgeted direct labour cost. The correct formula is: =B3*C3 or =C3*B3 or =(B3*C3) or =(C3*B3). C3 contains the labour cost per hour and B3 contains the number of hours, so you need to multiply these together. The two incorrect examples are wrong because they contain numbers in place of cell references.
Cell D10	=-(B10-C10) =-B10+C10	In this cell, you are calculating the revenue variance by taking actual revenue (in cell C10) minus budgeted revenue (in cell B10). The correct formula is =C10-B10 or =(C10-B10). The incorrect examples are using unnecessary negatives to begin or modify the calculation. You need to rearrange the calculation to avoid the need for the double negative.
Cell F10		In this cell, you are calculating the variance (in cell D10) as a percentage of the budgeted figure (in cell B10). The correct formula is =D10/B10*100 (or a variation of this, see the AAT solutions for the full list of acceptable answers). There are no incorrect formulas to explain for this cell, but it is worth noting that you need to include *100 in your formula. This differs from Excel, where you are not required to do this when calculating a percentage.

First Intuition materials

Course Notes update

If you have version V003 or earlier of the PCTN materials, we have included a copy of the updated Chapter 10 for you to print at the end of this document.

Task Bank and Mock Bank Update

The following explanatory notes have been added to our Task Bank and Mock Bank solutions:

Note 1

In your assessment, you will not be required to use directly entered numbers in a formula. You will only use formulas that contain cell references.

This note is relevant to:

Task 5 Revision example 3 part (b)

Task 7 Revision example 1 part (a)

Note 2

In your assessment, you need to manually enter all formulas. You cannot drag or copy formulas down to other cells in the AAT software.

This note is relevant to Task 7 Revision example 1 part (b)

Note 3

There is an important difference to watch out for in the AAT software when calculating percentages.

In Excel, you do not multiply by 100.

In the AAT software, you do need to. E.g. =C17/B4*100

This note is relevant to:

Task 7 Revision example 2 part (c)

Task 7 Revision example 3 part (a)

Mock 1 Task 7

10

Using spreadsheet skills to support cost calculations

Introduction

In this chapter, you will learn basic spreadsheet skills that can be used to support the calculation of costs. This will allow you to recognise that cost calculations can be prepared more quickly and accurately than manual calculations.

Throughout these notes we will be using examples from Excel, however there are many other spreadsheet programmes available. In the AAT assessment, a spreadsheet will be embedded within the exam software, you will not need to use external software.

Topics covered:

- Entering data in a spreadsheet
- Formatting data
- Using basic formulas
- Cost calculations

Entering data in a spreadsheet

We will be using Excel throughout these notes. We are only covering basic spreadsheet skills at this level, so it should not matter which version of Excel you are using to practice on. You could use one of the free alternatives such as Google Sheets if you do not have access to Excel.

Assess Smart

- In your assessment, the spreadsheet will be embedded within the exam software.
- You will not need to open, create or save a workbook.
- The exam software is not Excel. It will have similar buttons to Excel but it will not have the full menu of options along the top.
- Your work within the spreadsheet is automatically marked by the computer so you must follow the instructions carefully.

Terminology

Before we look any further at Excel let's have a look at a few definitions, these words will keep appearing throughout the notes and assessment so you must ensure you understand what they are referring to.

Workbook

The whole of the document. This is the 'file' which can be saved and e-mailed.

Worksheet

A workbook can contain several worksheets or 'spreadsheets'. The worksheet is the 'page' within the document on which work is performed.

Rows

A row is a group of cells running from the left of the page to the right of the page and is identified in Excel by a number (highlighted in grey).

Columns

A column is a group of cells running from the top of the page to the bottom of the page and is identified in Excel by a letter (highlighted in grey).

Cells

Each rectangle is called a cell and sits at the intersection of any row and column. Each cell can contain data (such as a number), text or a formula (which we will look at in detail later). There are hundreds of available formulae that can be used in a spreadsheet. A cell or series of cells can be formatted in a number of ways. The visual appearance can be altered in terms of the font, size, colour and number of decimal places of the data.

LECTURE EXAMPLE 1 – ROWS, COLUMNS AND CELLS

Using the spreadsheet below, answer the following questions.

	A	B
1	**Cost card**	
2		£
3	**Direct (or 'traceable') costs:**	
4	Direct material 4 wheels @ £20/wheel	80
5	Direct labour 2 hours @ £15/hour	30
6	**Prime cost** (total of direct costs)	110
7	**Indirect (or 'shared') costs**	
8	Variable overheads 2 hours @ £5/hour	10
9	Fixed overheads £50,000/10,000 units	5
10	**Total production cost**	125
11		

(a) Which column contains a £ sign?

(b) Which row contains the number 110?

(c) What does cell B8 contain?

(d) What is the reference of the cell containing the number 125?

There are spreadsheets to accompany some parts of these notes, these are available through the online resources or alternatively you can ask your tutor to send them through to you.

At this point, you should download and open the workbook entitled 'Lecture Examples'

The spreadsheet we used in the lecture example above is included on the worksheet 'LE1' and, if you are not confident using spreadsheets, you can use this sheet to practice navigating around the spreadsheet.

Tips for beginners:

- On your keyboard, the arrow keys will take you left, right, up and down. Alternatively you can click in a cell with your mouse.
- 'Enter' key will take you to cell below (shift Enter will take you to cell above).
- 'Tab' key will take you to cell to the right (shift Tab will take you to cell to the left).
- Typing in a cell that already contains data will overwrite the existing data.
- Pressing delete on your keyboard will clear the contents of a cell
- To edit the contents of a cell instead of overwriting it, you need to double click first, make the change and then press enter to accept.
- You can use your mouse to change the width of a column or the height of a row, which is useful to make sure all of the data is visible. Drag the boundary on the right side of the column (or the bottom edge of the row) until it is the width (or height) that you want.

ASSESS SMART

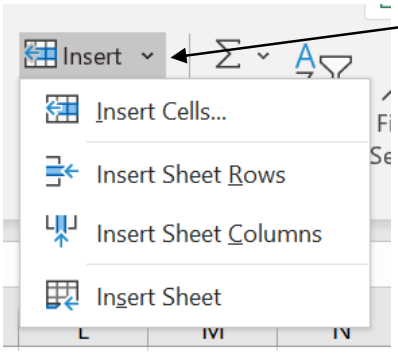
- On the AAT Lifelong Learning Portal, you will find a "Spreadsheet simulation familiarisation resource" and the practice assessments for this unit.
- It is essential that you use these to familiarise yourself with the functionality of the spreadsheet simulation question type. It does not behave exactly like a spreadsheet!

Insert rows and columns

We can insert rows and columns into a worksheet.

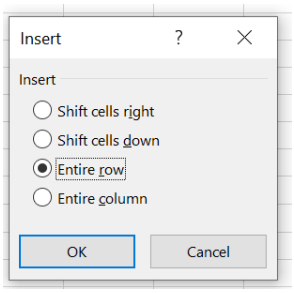
In Excel, you will find the Insert function in the 'Home' tab, in the 'Cells' group.

Select the cell where you want to insert the new blank cells. Then click on the arrow next to insert to display the options:



Insert Sheet Rows will add a row **above** the cell you are currently clicked in.
Insert Sheet Columns will add a column to the **left** of the cell you are currently clicked in.

Alternatively, you can right-click and press Insert… to access the following menu:



Try inserting some new rows and columns in worksheet 'LE1' for practice.

ASSESS SMART

- In the AAT software, you need to right click on the row or column to insert or delete a new one. You can practice this in the spreadsheet simulation, but you will notice that it is not always available in the practice assessments.
- This functionality may be disabled if you have not been asked to demonstrate this skill in that particular question.

Cut, copy and paste

You can use the **cut**, **copy**, and **paste** commands in Excel to move or copy entire cells or their contents.

When you move or copy a cell, Excel moves or copies the entire cell, including formulas and their resulting values, cell formats, and comments.

- Select the cells that you want to move or copy by clicking and dragging with your mouse. Alternatively you can hold down the shift key (⇧) and use the arrow keys on your keyboard.

On the **home** tab, in the **clipboard** group, do one of the following:

- To move cells, click **cut:** 
- To copy cells, click **copy:** 
- To paste cells, click **paste:** 

Lecture Example 2 – Insert, Cut, Copy and Paste

In the 'Lecture Examples' workbook, click on the worksheet called 'LE2.' It will look like this:

	A	B	C
1	Budget for the period ended 31 December 20XX		
2	Budgeted units	1,000	
3		£	
4	Sales revenue (1,000 x £80)	80,000	
5	Variable costs:		
6	Materials (1,000 x £12)	12,000	
7	Labour (1,000 x £30)	30,000	
8	Fixed overheads	20,000	
9	Total cost	62,000	
10	Total profit	18,000	
11			
12			
13			
14			
15			
16			

LE1 | LE2 | LE3 | LE4 | LE5

(a) Insert a row between rows 1 and 2.

(b) Insert a column between columns A and B.

(c) Copy all cells containing data, and paste the contents starting in cell E1.

(d) Re-size the rows and columns so that all data is visible.

If you need help with these tasks, you will find detailed instructions in the Solutions to Lecture Examples pages at the end of this chapter. There is also a 'Lecture Examples – Solutions' workbook to download which contains the completed tasks.

ASSESS SMART

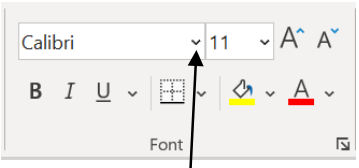
- In the AAT software, you need to right click in a cell to copy and paste. Keyboard shortcuts such as CTRL+C do not work.
- The copy and paste functionality may be disabled if you have not been asked to demonstrate this skill in that particular question.

Formatting data

Formatting font

The font of the text and numbers can be changed in style, size and colour. It can also have further formats applied to it to make it bold, italic, and underlined.

From the 'Home' tab, you can access these shortcut buttons:



Click on the arrow next to Calibri to select another font. They are listed in alphabetical order.

To change the font size, click on the arrow next to 11, or use the increase and decrease buttons:

If you want to make text stand out, you can use bold, italics or underline: 

You can also change the font colour here: 

ASSESS SMART

- There are only a small range of fonts available in the AAT software.
- The font sizes are referred to as 10px, 12px etc. The abbreviation "px" means pixels.

LECTURE EXAMPLE 3 - FORMATTING

In the 'Lecture Examples' workbook, click on the worksheet called 'LE3.' It will look like this:

	A	B	C	D	E	F
1	Employee name:	Stella				
2	Clock card number:	449393				
3	Week number:	12				
4		Mon	Tues	Wed	Thurs	Fri
5	Hours worked	8.5	8.5	9	8.5	9
6	Basic pay	£ 112.00	£ 112.00	£ 112.00	£ 112.00	£ 112.00
7	Overtime pay	£ 8.75	£ 8.75	£ 17.50	£ 8.75	£ 17.50
8	Units produced	138	142	147	150	153
9	Extra units	2	6	3	14	9
10	Bonus payable	£ 5.00	£ 15.00	£ 7.50	£ 35.00	£ 22.50
11	Total payable for the day	£ 125.75	£ 135.75	£ 137.00	£ 155.75	£ 152.00

(a) In cell A1, change the font to Arial size 12.

(b) In cell B1, change the font colour to red.

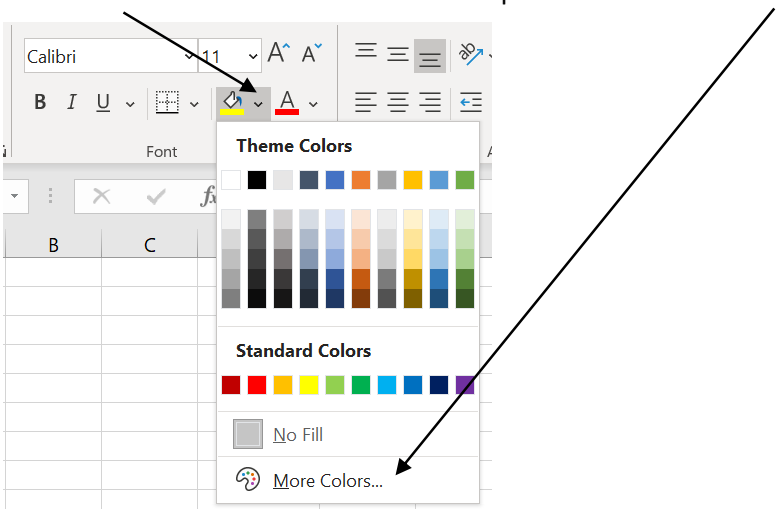
(c) In cell B2, make the text italic.

(d) In row 4, underline the text.

(e) In row 11, make the text bold.

Fill

To make a cell stand out on your spreadsheet, it can be filled with colour using the paint can. Click on the arrow to see the standard colour options or click on More Colours for more options.

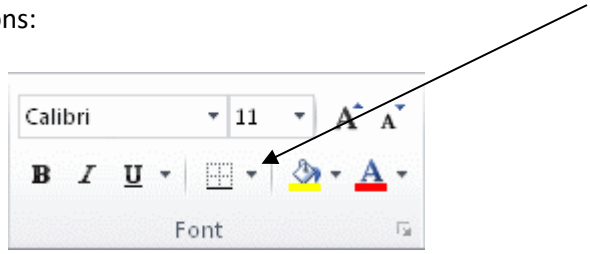


Borders

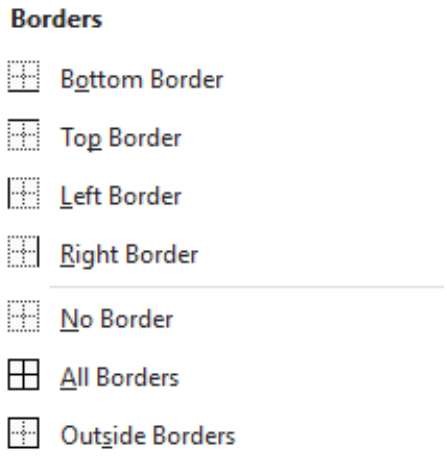
You can apply or remove borders from individual cells or a range of cells in a number of ways when using excel. Borders can help to make your work look more professional by making totals stand out.

By using predefined border styles you can quickly add a border around cells or ranges of cells.

On the Home tab, in the Font group, click on the arrow next to the Borders button to see the various options:



These options include:



If you make a mistake, you can select No Border from the list and try again.

Assess Smart

In the AAT software, you also have the choice of two thicknesses of border:

- 1px solid black – which gives a thin line
- 3px solid black – which gives a thick line

Pay attention to which one you have been asked to use.

Merge & Center

Merge & Center can be used to combine two or more selected cells into a single cell that spans across several columns or rows. It is often used to give a title to a spreadsheet.

Highlight the cells that you want to merge and click: 

Wrap Text

This option will re-size a cell to ensure that all the text that has been typed into it is visible.

Highlight the cells that you want to format, and press: 

LECTURE EXAMPLE 4 - FORMATTING

In the 'Lecture Examples' workbook, click on the worksheet called 'LE4.' It will look like this:

	A	B	C	D
1	Coding transactions			
2	Profit/Cost centre	Code	Sub-classification	Sub-code
3	Sales	150	Sales of men's shc	75
4			Sales of women's	95
5	Production	240	Direct cost	125
6			Indirect cost	145
7	Administration	360	Direct cost	255
8			Indirect cost	275
9	Selling and distribu	480	Direct cost	375
10			Indirect cost	395
11				

(a) Merge & Center cells A1:D1.

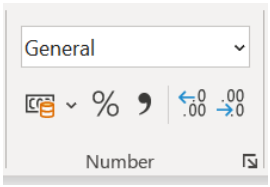
(b) Wrap the text in columns A and C.

(c) Fill cells A2:D2 in orange.

(d) Put a thick outside border around cells A2:D10.

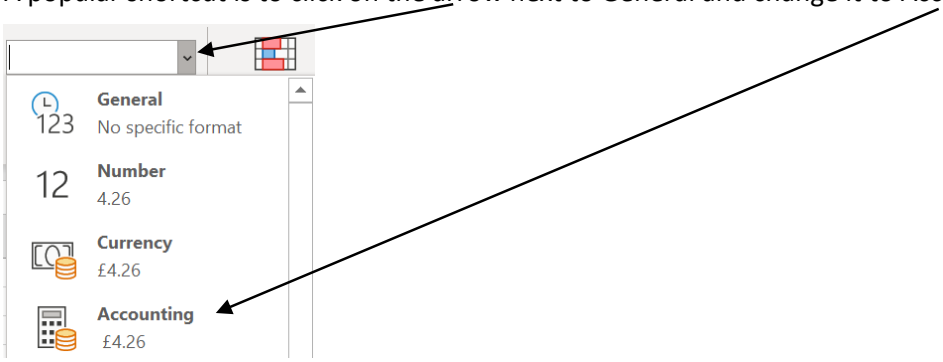
Formatting numbers

To format the numbers in any cells you need to highlight the cell you wish to change and then select one of the following options from the Number section of the home tab:



- Use this button to display numbers as a **percentage:** 
- Use these buttons to increase or decrease the number of **decimal places:** 
- Use this button to add commas for thousand separators: 

A popular shortcut is to click on the arrow next to General and change it to Accounting:



This will add a pound sign, add thousand separators and format the number to two decimal places.

Assess Smart

In the AAT software, you have the following options:

- Accounting – e.g. £100,000.00 (£ sign, comma and 2dp)
- Thousands, e.g. 100,000 (comma)
- Percent, e.g. 100% (% sign)
- Number, e.g. 100000.00 (2dp)

Lecture Example 5 - Formatting

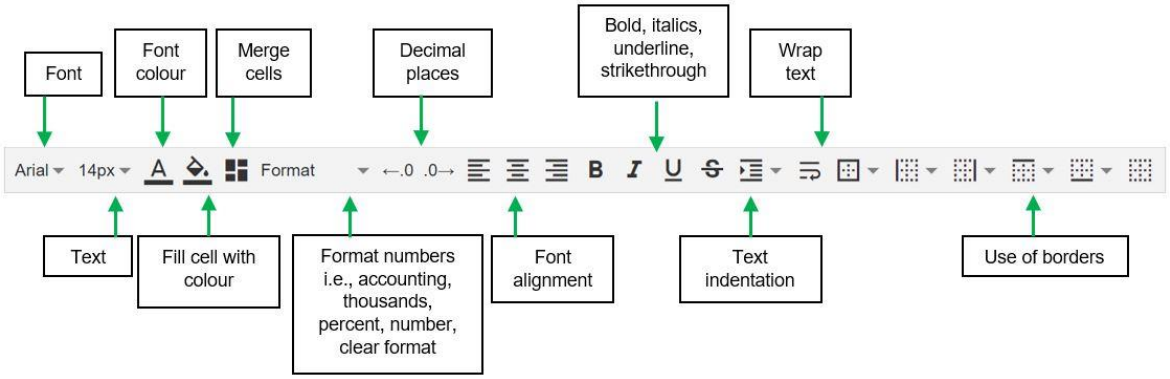
In the 'Lecture Examples' workbook, click on the worksheet called 'LE5.' It will look like this:

	A	B	C
1	(a) Format cell C1 to a percentage with three decimal places.		0.461846859
2	(b) Format cell C2 to a percentage with no decimal places.		0.17463816
3	(c) Format cell C3 to a number with two decimal places.		6.716486635
4	(d) Add a thousand separator to cell C4.		65645
5	(e) Format cell C5 to the accounting format.		62547.726

Format the figures in column C as per the instructions in column A.

ASSESS SMART

In the AAT software, you will have the following formatting toolbar:



Formatting can only be applied to editable cells. Some cells may be set to read only and you will not be able to use any of the formatting tools in these cells.

Using basic formulas

Formulas are equations that can perform calculations. A formula always starts with an equals sign (=), otherwise Excel will not know that the content of the cell is to be treated as a formula and will display it as text.

To perform basic mathematical operations such as addition, subtraction, multiplication, division, combine numbers, and produce numeric results we use the following arithmetic operators.

Arithmetic operator	Meaning	Example
+ (plus sign)	Addition	=3+3
– (minus sign)	Subtraction	=3–1
* (asterisk)	Multiplication	=3*3
/ (forward slash)	Division	=3/3

Addition

If you need to add together the data from cells A1 and A2, you could use the formula =A1+A2 to return the result. In this case, you can either type the cell reference (e.g. A1) or after typing enter, you can click on the relevant cell to include it in your formula.

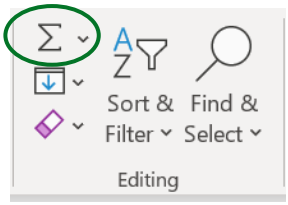
ASSESS SMART

Note: In the AAT assessment software, you must manually enter the cell references. You cannot click on the cells to include them in a formula.

If you just need a quick result you can use Excel as a mini calculator. Do this by using the plus sign (+) in the formula between each selected cell. '=A1+A2+A3+A4….'

This becomes quite time consuming with large volumes of numbers to be added together. This is where the Sum function comes in handy!

It can be found in the Editing section of the home tab.



You can use Sum to quickly add up a range of numbers in a column or row.

Click an empty cell below a column of numbers or to the right of a row of numbers, and then click ∑. Excel selects what it determines to be the most likely range of data. Click Sum again or press enter to accept the range that Excel selects or select your own range by highlighting the relevant cells.

Assess Smart

The ∑ button does not exist in the AAT assessment software, so you will need to type =SUM instead, followed by the range of cells that you want to add up.
For example =SUM(A1:A14) will add together all cell values in the range from A1 to A14.

Subtraction, Multiplication and Division

To begin a formula, type equals in a cell. You can then type in the relevant cell reference or click in the cell and use the -, * or / keys to enter your formula.

For example =A14-A1 will subtract the value in cell A1 from the value in cell A14.

For example =A1*A14 will multiply the value in cell A1 by the value in cell A14.

For example =A14/A1 will divide the value in cell A14 by the value in cell A1.

These functions can also be combined into more complicated formulas.

For example =A1-SUM(B1:B10) would deduct the total of cells B1:B10 from the value in cell A1.

For example =A1*SUM(B1:B10) would multiply the value in cell A1 by the total of cells B1:B10.

Note: The AAT require you to enter your formulas in certain specified formats. We will look at this in more detail later in the chapter.

ILLUSTRATION – SIMPLE CALCULATIONS

Let's say we have the following data entered into a spreadsheet.

	A	B	C
1	54	21	
2	32	3	
3	45	14	
4	87	15	
5	25	6	
6	94	64	
7			

If we want to show in column 'C' the result of adding together cells A and B we would click on cell 'C1' and type '=A1+B1' and then press enter, this will total these 2 cells.

It is possible to copy the formula down a column of cells, for example, if you want to copy the formula in cell C1, you must first make C1 the active cell and then click on the bottom right hand corner of the cell and drag your cursor down the column. This will automatically move the referencing down the cells. So cell C2 will contain the formula '=A2+B2'.

For cell C3 to contain A less B, the formula '=A1-B1' should be typed in. You can also use the divide or multiply signs in the same way.

Relative cell referencing

By default a cell reference is relative. In the above illustration we used the formula '=A1 +B1' in cell C1 to add together cells A1 and B1. When we copied the formula from C1 down to C2, the cell references in the formula in cell C2 '=A2+B2' automatically changed to add together cells A2 and B2. This is beacause the formula is actually adding together the two cells to its right.

ASSESS SMART

Note: In the AAT assessment software, you must manually enter your formulas. Dragging formulas across or down to other cells does not work.

Formula guidance

The AAT will only accept spreadsheet formulas in certain stipulated formats. This is to enable the assessment to be fully computer marked. It is important to understand that just because something works in Excel, doesn't mean it will be marked correct in your assessment!

The guidance, which can be accessed via the references panel in the assessment, is as follows:

You should:

- Manually enter cell references to relevant figures in the table.
- Use standard round brackets ( ) where relevant.

You should not:

- Use directly entered numbers in place of cell references.
- Use PRODUCT in formulas for multiplication.
- Use individual cell references (e.g. B1+B2+B3) within SUM functions.
- Include unnecessary positive/negative signs to modify a calculation.
- Include unnecessary spaces or commas.
- Include unnecessary zeroes within cell references, e.g. A01 instead of A1.
- Include additional cell references not relevant to the calculation.

Let's explore this in more detail by thinking about the types of formula you may need to use.

Addition

If you need to add up a list of cells, it would be acceptable to use the + key, for example =A1+B1+C1.

It would also be acceptable to use the SUM function, for example =SUM(A1:C1).

However, it would not be acceptable to combine the two. For example, =SUM(A1+B1+C1) would not be acceptable, because =SUM is unnecessary in this formula.

Similarly, you should not use commas in a SUM formula. For example, =SUM(A1,B1,C1) would not be acceptable.

Note: Only addition calculations should begin with =SUM. You should not use the Sum function for subtraction, multiplication or division.

Subtraction

You need to avoid using unnecessary positives or negatives to begin or modify your formulas.

Rearrange your calculation to find the simplest way of expressing it. For example, =C1-B1 would be acceptable, but =+C1-B1 and =-(B1-C1) would not be acceptable, because these are unnecessarily long-winded.

Multiplication

The assessment will accept the cells being entered in different orders. For example, =A1*B1 and =B1*A1 would both be correct.

There is a function in Excel called =PRODUCT which multiplies all the referenced cells together. You should not use this in any of your formulas.

Division

We often use division when we are calculating one number as a percentage of another. If you are calculating a percentage, you need to remember to multiply it by 100. For example, to calculate C1 as a percentage of A1, you would need to enter =C1/A1*100.

This differs from Excel, where you do not need to multiply by 100, so be careful! You should always sense-check the answers to your formulas.

General guidance

Your formulas will be marked wrong if they include:

- unnecessary spaces
- commas
- square brackets [ ] or curly brackets { } – you **must** use ( )
- numbers in place of cell references – e.g. =A1*50
- redundant references to cells not required for the calculation
- adding 0s to cell references – e.g. A01, rather than A1

ASSESS SMART

Sometimes you will be asked NOT to use a formula in a particular cell. In this case, work out the answer on your calculator and type the number in.

Cost calculations

ASSESS SMART

The AAT want to see that you can use a spreadsheet to carry out some of the cost calculations that you learnt in previous chapters. For example, you may be asked to calculate variances. The technique is the same as in Chapter 9. The only difference is that you will be using a spreadsheet rather than your calculator!

LECTURE EXAMPLE 6 – COST CALCULATIONS

In the 'Lecture Examples' workbook, click on the worksheet called 'LE6.' It will look like this:

	A	B	C	D	E
1		Budget	Actual	Variance	Variance
2		£	£	£	%
3	Sales	720,000	748,000		
4	Material	300,000	310,000		
5	Labour	225,000	223,500		
6	Electricity	45,000	46,000		
7	Rent	60,000	58,000		
8	Total costs				
9	Profit				

(a) In cells B8 and C8, use a Sum function to work out the total costs.

(b) In cells B9 and C9, use a formula to calculate profit.

(c) In cells D3:D9, use formulas to calculate the variance in £.

(d) In cells E3:E9, use formulas to calculate the variance as a percentage of the budgeted figure.

Note: All monetary values should be formatted to 0 decimal places, with comma separators, no £ sign. All percentages should be formatted to 2 decimal places with a % sign.

Solutions to lecture examples

Lecture Example 1 – Rows, Columns and Cells

Using the spreadsheet below, answer the following questions.

	A	B
1	**Cost card**	
2		£
3	**Direct (or 'traceable') costs:**	
4	Direct material 4 wheels @ £20/wheel	80
5	Direct labour 2 hours @ £15/hour	30
6	**Prime cost** (total of direct costs)	110
7	**Indirect (or 'shared') costs**	
8	Variable overheads 2 hours @ £5/hour	10
9	Fixed overheads £50,000/10,000 units	5
10	**Total production cost**	125
11		

(a) Which column contains a £ sign? B

(b) Which row contains the number 110? 6

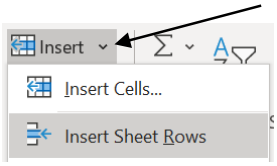
(c) What does cell B8 contain? 10

(d) What is the reference of the cell containing the number 125? B10

Lecture Example 2 – Insert, Cut, Copy and Paste

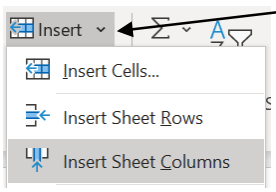
(a) Insert a row between rows 1 and 2.

Click in any cell in Row 2, remember that the row will be inserted above the row that you are clicked in. Then click on the arrow next to Insert, and select Insert Sheet Rows.



(b) Insert a column between columns A and B.

Click in any cell in Column B, remember that the column will be inserted to the left of the column that you are clicked in. Then click on the arrow next to Insert, and select Insert Sheet Columns.



At this stage, your spreadsheet should look like this:

	A	B	C	D
1	Budget for the period ended 31 December 20XX			
2				
3	Budgeted units		1,000	
4			£	
5	Sales revenue (1,000 x £80)		80,000	
6	Variable costs:			
7	Materials (1,000 x £12)		12,000	
8	Labour (1,000 x £30)		30,000	
9	Fixed overheads		20,000	
10	Total cost		62,000	
11	Total profit		18,000	
12				

(c) Copy all cells containing data, and paste the contents starting in cell E1.

Highlight cells A1 to C11 and press copy 

Then click in cell E1 and press paste 

Your spreadsheet will now look like this:

	A	B	C	D	E	F	G	H	I
1	Budget for the period ended 31 December 20XX				Budget for the period ended 31 December 20XX				
2									
3	Budgeted units		1,000		Budgeted units		1,000		
4			£				£		
5	Sales revenue (1,000 x £80)		80,000		Sales revenue (1,000		80,000		
6	Variable costs:				Variable costs:				
7	Materials (1,000 x £12)		12,000		Materials (1,000 x £1		12,000		
8	Labour (1,000 x £30)		30,000		Labour (1,000 x £30)		30,000		
9	Fixed overheads		20,000		Fixed overheads		20,000		
10	Total cost		62,000		Total cost		62,000		
11	Total profit		18,000		Total profit		18,000		
12									

(d) Re-size the rows and columns so that all data is visible.

Column B is much wider than it needs to be. Column E is not wide enough to display all the text. Click on the boundary between columns B and C and drag to resize. Then repeat on the boundary between columns E and F.

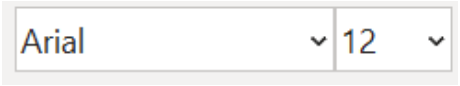
Your completed spreadsheet should look like this:

	A	B	C	D	E	F	G
1	Budget for the period ended 31 December 20XX				Budget for the period ended 31 December 20XX		
2							
3	Budgeted units		1,000		Budgeted units		1,000
4			£				£
5	Sales revenue (1,000 x £80)		80,000		Sales revenue (1,000 x £80)		80,000
6	Variable costs:				Variable costs:		
7	Materials (1,000 x £12)		12,000		Materials (1,000 x £12)		12,000
8	Labour (1,000 x £30)		30,000		Labour (1,000 x £30)		30,000
9	Fixed overheads		20,000		Fixed overheads		20,000
10	Total cost		62,000		Total cost		62,000
11	Total profit		18,000		Total profit		18,000
12							

LECTURE EXAMPLE 3 - FORMATTING

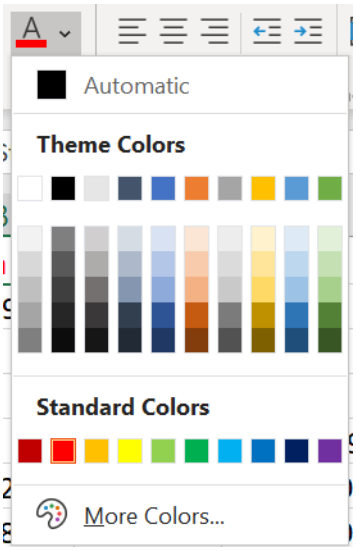
(a) In cell A1, change the font to Arial size 12.

Click in cell A1 and use these dropdown arrows to change the font to Arial size 12:



(b) In cell B1, change the font colour to red.

Click in cell B1 and use the font colour button. Choose red from the menu:



(c) In cell B2, make the text italic.

Click in cell B2 and press the italic button: *I*

(d) In row 4, underline the text.

Highlight row 4 and press the underline button: U

(e) In row 11, make the text bold.

Highlight row 11 and press the bold button: **B**

Your completed spreadsheet should look like this:

	A	B	C	D	E	F
1	Employee name:	Stella				
2	Clock card number:	*449393*				
3	Week number:	12				
4		Mon	Tues	Wed	Thurs	Fri
5	Hours worked	8.5	8.5	9	8.5	9
6	Basic pay	£ 112.00	£ 112.00	£ 112.00	£ 112.00	£ 112.00
7	Overtime pay	£ 8.75	£ 8.75	£ 17.50	£ 8.75	£ 17.50
8	Units produced	138	142	147	150	153
9	Extra units	2	6	3	14	9
10	Bonus payable	£ 5.00	£ 15.00	£ 7.50	£ 35.00	£ 22.50
11	**Total payable for the day**	**£ 125.75**	**£ 135.75**	**£ 137.00**	**£ 155.75**	**£ 152.00**

Lecture Example 4 - Formatting

(a) Merge & Center cells A1:D1.

Highlight cells A1:D1 and click 

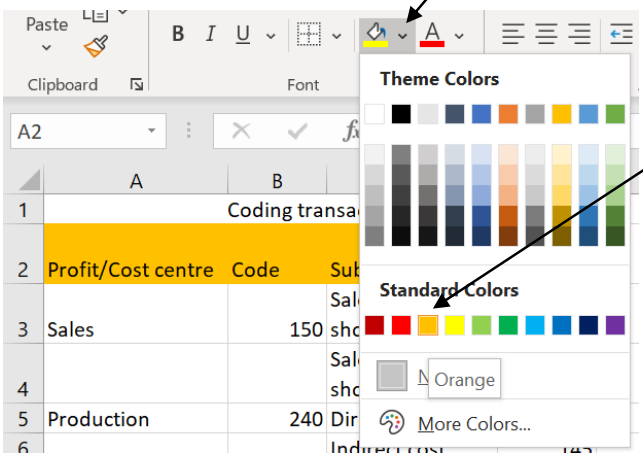
(b) Wrap the text in columns A and C.

Highlight column A and click 

. Repeat for column C. All text should now be visible.

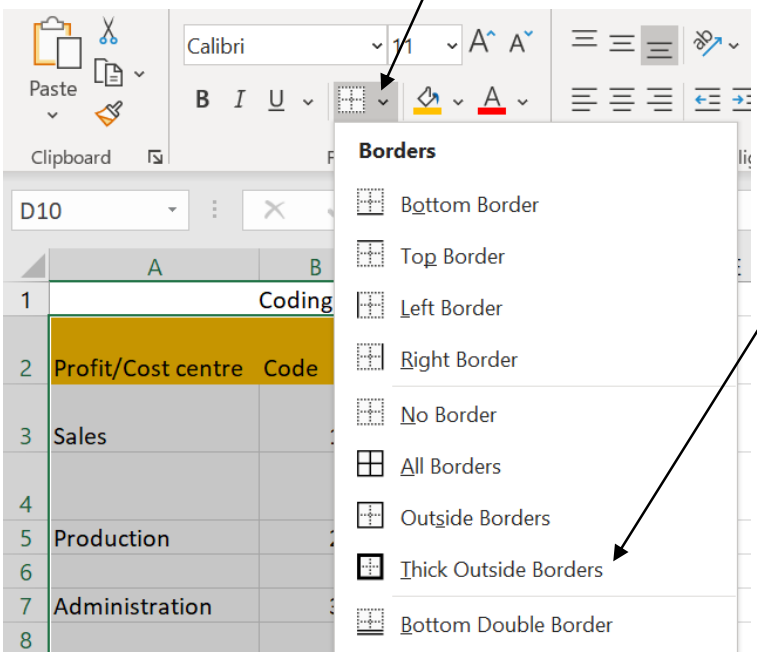
(c) Fill cells A2:D2 in orange.

Highlight cells A2:D2. Click on the arrow next to the fill button and choose orange.



(d) Put a thick outside border around cells A2:D10.

Highlight cells A2:D10. Click the arrow next to the borders button and select Thick Outside Borders.



Your completed spreadsheet should look like this:

	A	B	C	D
1	Coding transactions			
2	Profit/Cost centre	Code	Sub-classification	Sub-code
3	Sales	150	Sales of men's shoes	75
4			Sales of women's shoes	95
5	Production	240	Direct cost	125
6			Indirect cost	145
7	Administration	360	Direct cost	255
8			Indirect cost	275
9	Selling and distribution	480	Direct cost	375
10			Indirect cost	395

LECTURE EXAMPLE 5 - FORMATTING

Format the figures in column C as per the instructions in column A.

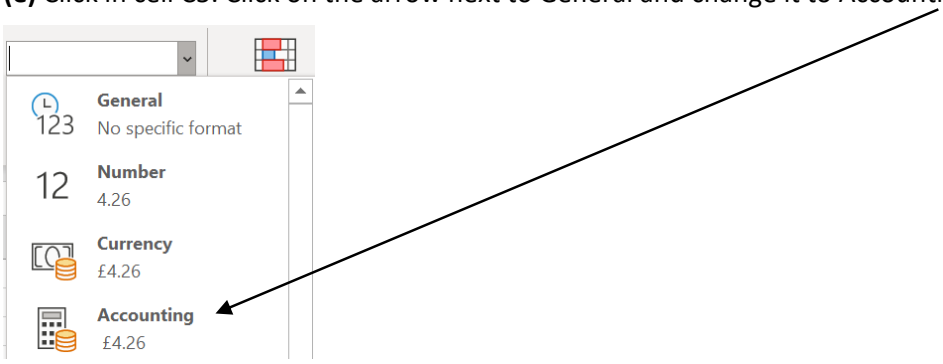
(a) Click in cell C1. Press the percentage button % followed by the increase decimal button ←.0 .00 until it looks like this: 46.185%

(b) Click in cell C2. Press the percentage button % and it should default to no decimal places, to look like this: 17%

(c) Click in cell C3. It is already a number so you just need to press the decrease decimal button .00 →.0 until it looks like this: 6.72

(d) Click in cell C4. Press this button to add commas for thousand separators , and it should look like this: 65,645.00

(e) Click in cell C5. Click on the arrow next to General and change it to Accounting:



It should look like this: £ 62,547.73

LECTURE EXAMPLE 6 – COST CALCULATIONS

(a) In cells B8 and C8, use a Sum function to work out the total costs.

In cell B8, you should have entered =SUM(B4:B7) either by typing it in manually or using the sum button Σ. Take care not to include cell B3 in your sum, as we only want costs.

In cell C8, you should have entered =SUM(C4:C7). A quick way to do this would be to click on the bottom right hand corner of cell B8 and drag the formula across to cell C8:

	A	B	C	D	E
1		Budget	Actual	Variance	Variance
2		£	£	£	%
3	Sales	720,000	748,000		
4	Material	300,000	310,000		
5	Labour	225,000	223,500		
6	Electricity	45,000	46,000		
7	Rent	60,000	58,000		
8	Total ts	630,000	637,500		
9	Profit				

Don't be alarmed by this warning message. It is just checking that we do not want to include row 3 in our sums, which we do not!

(b) In cells B9 and C9, use a formula to calculate profit.

We need to subtract total costs from sales. In cell B9, you should have entered =B3-B8. You could then drag this formula across to cell C9, or just enter =C3-C8.

(c) In cells D3:D9, use formulas to calculate the variance in £.

To calculate the variance, we need to subtract the figures in column C (the actuals) from the figures in column B (the budget).

In cell D3, you should have entered =C3-B3. You could then drag this formula down to cell D9:

	A	B	C	D	E
1		Budget	Actual	Variance	Variance
2		£	£	£	%
3	Sales	720,000	748,000	28,000	
4	Material	300,000	310,000	10,000	
5	Labour	225,000	223,500	-1,500	
6	Electricity	45,000	46,000	1,000	
7	Rent	60,000	58,000	-2,000	
8	Total costs	630,000	637,500	7,500	
9	Profit	90,000	110,500	20,500	
10					

These figures are already formatted as per the instructions by default.

(d) In cells E3:E9, use formulas to calculate the variance as a percentage of the budgeted figure.

We need to divide the figures in column E (the variances) by the figures in column B (the budget).

In cell E3, you should have entered =D3/B3. You could then drag this down to cell E9:

	A	B	C	D	E	F
1		Budget	Actual	Variance	Variance	
2		£	£	£	%	
3	Sales	720,000	748,000	28,000	0.038889	
4	Material	300,000	310,000	10,000	0.033333	
5	Labour	225,000	223,500	-1,500	-0.00667	
6	Electricity	45,000	46,000	1,000	0.022222	
7	Rent	60,000	58,000	-2,000	-0.03333	
8	Total costs	630,000	637,500	7,500	0.011905	
9	Profit	90,000	110,500	20,500	0.227778	
10						
11						

We then need to format these percentages using the % button followed by the ←.0 .00 button.

Your completed spreadsheet should look like this:

	A	B	C	D	E
1		Budget	Actual	Variance	Variance
2		£	£	£	%
3	Sales	720,000	748,000	28,000	3.89%
4	Material	300,000	310,000	10,000	3.33%
5	Labour	225,000	223,500	-1,500	-0.67%
6	Electricity	45,000	46,000	1,000	2.22%
7	Rent	60,000	58,000	-2,000	-3.33%
8	Total costs	630,000	637,500	7,500	1.19%
9	Profit	90,000	110,500	20,500	22.78%
10					

ASSESS SMART

There are two important differences that you need to be aware of between Excel and the AAT software:

- You cannot drag formulas down in the AAT software. You will need to enter each one manually.
- When calculating the variance percentages in Excel, you do not need to multiply by 100, whereas in the AAT software you do need to.