REAL-LIFE MATHS

Managing Finance and Statistics

Workbook for National 4 Applications of Mathematics

Unit 1: Managing Finance and Statistics



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Blewis LEARNING

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How to use this book

This book helps you use maths to manage money and make sense of data: budgets, pay, deals, currency, interest, risk and statistics. Each topic follows the same pattern, so you always know what comes next.

EACH TOPIC HAS

Opener	the story for the topic, what you will learn and the key words
Skill pages	a short explanation, a method box and a worked example
Practice pages	questions for you to try, with space for your working
Real-life task	a bigger problem that uses all the skills in the topic
Check-up	a few questions to show what you can do, and a checklist

LOOK OUT FOR

Method	the steps to follow
Worked example	a question that has been answered for you, step by step
Top tip / Watch out	helpful hints and common mistakes
Talk about it	questions to discuss with a partner or your teacher

SHOW YOUR WORKING
Write down your working in the boxes, not just the answer. It helps you check your answer, and your teacher can see how you got there.

CALCULATORS
Try to work things out in your head or on paper first. You can use a calculator when the page says so, or when your teacher says it is OK.

ANSWERS
The answers are at the back of the book. Use them to check your work after you have tried the questions yourself.

Budgets

A budget compares the money coming in with the money going out. In this topic you will work out whether a budget balances, and how to fix it when it does not.

Theme: a first flat. Isla has finished college and has a job at the Glen Arrin garden centre. She wants to rent her own flat. Follow Isla as she plans her money month by month.



IN THIS TOPIC YOU WILL LEARN TO

Skill 1	work out income, spending and the financial position (surplus or deficit)
Skill 2	balance a budget by changing what you spend
Skill 3	track a balance from month to month and spread yearly bills

KEY WORDS

Income	all the money coming in, such as take-home pay
Expenditure	all the money going out, such as rent and food
Budget	a plan of income and expenditure for a set time
Surplus	money left over when income is more than spending
Deficit	the shortfall when spending is more than income
Balance	how much money you have at a point in time

❶ Surplus or deficit?

Your **financial position** tells you whether your budget works. Add up the income and the expenditure, then compare them.

METHOD

Step 1	add up all the income
Step 2	add up all the expenditure
Step 3	income − expenditure
Step 4	positive answer = **surplus**; negative answer = **deficit**

WORKED EXAMPLE

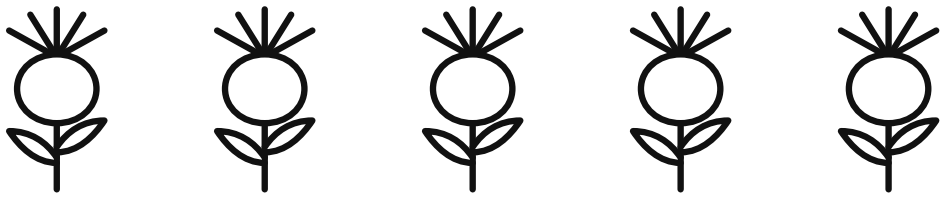
Isla's take-home pay is **£1,240** a month. Her monthly costs are rent £475, council tax £96, energy £85, phone £22, food £220 and travel £64.

Expenditure	475 + 96 + 85 + 22 + 220 + 64 = **£962**
Compare	£1,240 − £962 = £278
Explain	**Isla has a surplus of £278 a month, so she can afford these costs.**

TOP TIP

Always finish with a sentence that answers the question. A number on its own does not explain your solution.

DOODLE CORNER



Practice: surplus or deficit?

You can use a calculator for these questions.

1 Kai takes home £980 a month. Here are his monthly costs.

Rent	Food	Bills	Bus	Phone	Gym	Going out
£420	£190	£140	£48	£18	£25	£160

a Work out Kai's total expenditure.

Answer:

b Does Kai have a surplus or a deficit? How much?

Answer:

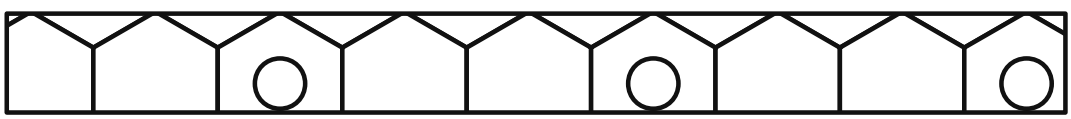
2 Complete Mia's monthly budget. Then write down her financial position.

Income		**Expenditure**	
Wages	£1,150	Rent	£500
Extra shifts	£85	Bills	£180
		Food	£240
		Travel	£90
		Other	£150
Total income		**Total spending**	

Financial position:

3 Explain why a deficit is a problem if it happens every month.

DOODLE CORNER



❷ Balancing a budget

A budget **balances** when spending is no more than income. To fix a deficit you can spend less, earn more, or both. Choose changes that are realistic.

METHOD

Step 1	find the size of the deficit
Step 2	list the costs you could cut and how much each saves
Step 3	pick changes that save at least the deficit
Step 4	check the new total and explain your choice

WORKED EXAMPLE

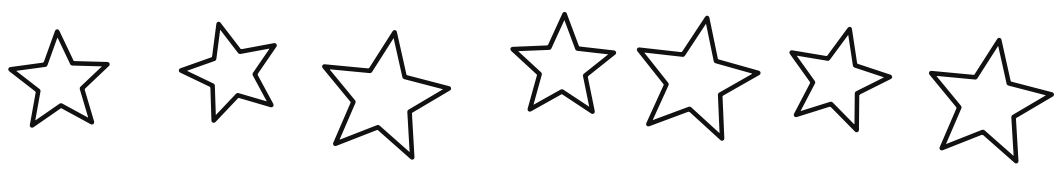
Kai has a deficit of **£21** a month. He could cancel the gym (saves £25) or go out less (saves £30).

Option A	cancel the gym: −£21 + £25 = **£4 surplus**
Option B	go out less: −£21 + £30 = **£9 surplus**
Explain	**Either change balances the budget. Option B leaves more spare, and Kai keeps the gym, which is good for his health.**

WATCH OUT

Some costs cannot be cut, such as rent or council tax. These are called fixed costs. Look for savings in costs that can change.

DOODLE CORNER



Practice: balancing a budget

You can use a calculator for these questions.

1 Owen takes home £860 a month. His spending is rent £390, food £175, bills £120, phone £30, streaming £21, takeaways £80 and travel £80.

a Work out Owen's financial position.

WORKING

Answer:

b Owen could make these changes. Choose changes that balance his budget. Explain your choice.

Change	Saving each month
Cancel streaming	£21
Cheaper phone deal	£12
Halve takeaways	£40
Walk to work (1 hour each way)	£80

Answer:

2 Zara takes home £1,020 a month and spends £1,005. She wants to save £50 a month.

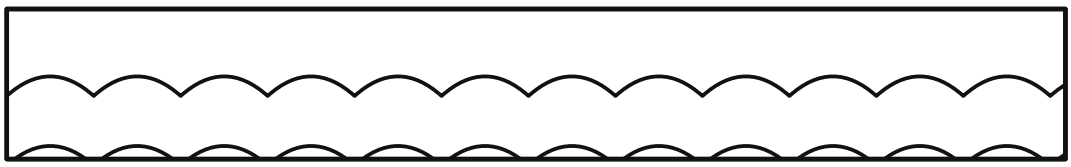
a How much is her surplus now?

Answer:

b How much more does she need to save each month to reach £50?

Answer:

DOODLE CORNER



❸ Month by month

A budget changes from month to month. A table, like a spreadsheet, helps you track your **balance**. Some bills are paid once a year, so it helps to save for them a bit each month.

METHOD

Balance	balance at start + income − spending = balance at end
Next month	the end balance becomes the next start balance
Yearly bill	yearly cost ÷ 12 = amount to save each month

WORKED EXAMPLE

Leo has £120. Each month he earns £900.

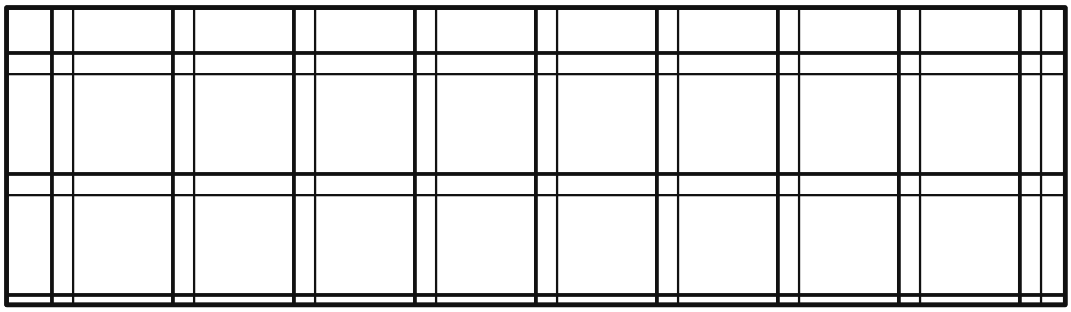
Month	Start	Income	Spending	End
Jan	£120	£900	£950	£70
Feb	£70	£900	£860	£110
Mar	£110	£900	£905	**£105**

In January Leo spent more than he earned, so his balance fell. It recovered in February.

TOP TIP

A yearly bill of £540 costs £540 ÷ 12 = £45 a month. Putting this aside each month means the bill is never a shock.

DOODLE CORNER



FREE SAMPLE

Managing Finance and Statistics (N4 Apps of Maths)

This sample shows a few pages. The full printed workbook is available from Amazon.

blewislearning.co.uk

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