GCSE

WJEC GCSE Mathematics and Numeracy (Double Award)

Approved by Qualifications Wales

Sample Assessment Materials

Unit 1: Financial Mathematics and Other Applications of Numeracy
Higher Tier

Teaching from 2025
For award from 2026

This Qualifications Wales regulated qualification is not available to centres in England.

Made for Wales.
Ready for the world.

WJEC would like to thank the students and teachers of Fitzalan High School, Cardiff and Llanwern High School, Newport for their participation in the creation of these covers.

Contents

Surname	Centre number	Candidate number
First name(s)		0

GCSE

3320UA

Mathematics and Numeracy (Double Award)
Unit 1: Financial Mathematics and Other Applications of Numeracy
Higher Tier

1 hour 45 minutes

SAMPLE ASSESSMENT MATERIALS

Additional materials

The use of a calculator will be required for this examination.

A ruler, a protractor and a pair of compasses may be required.

Instructions to candidates

Use black ink or black ball-point pen. Do **not** use gel pen or correction fluid.

You may use a pencil for graphs and diagrams only.

Write your name, centre number and candidate number in the spaces provided at the top of this page.

Answer **all** the questions in the spaces provided.

If you need more space, use the additional page(s) at the back of this booklet. Number the question(s) correctly.

Take π as 3·14 or use the π button on your calculator.

Information for candidates

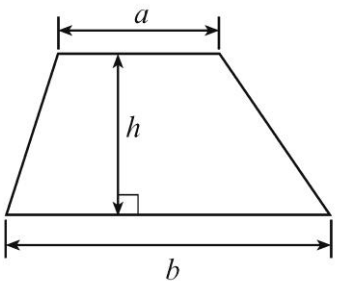
The number of marks is given in brackets at the end of each question or part-question.

In question 6, the assessment will take into account the quality of your mathematical organisation, communication and accuracy in writing.

For examiner's use only		
Question	**Maximum mark**	**Mark awarded**
1.	3	
2.	5	
3.	5	
4.	7	
5.	3	
6.	7	
7.	6	
8.	7	
9.	10	
10.	9	
11.	5	
12.	5	
13.	8	
Total	**80**	

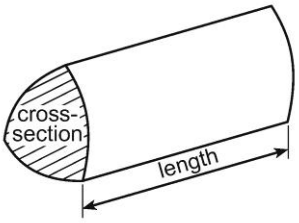
Formula List – Unit 1 Higher Tier

Area of a trapezium = $\frac{1}{2}(a+b)h$



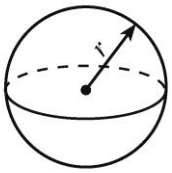
Volume of an Object with a Uniform Cross-section (e.g. Prism, Cylinder)

Volume = area of cross section × length



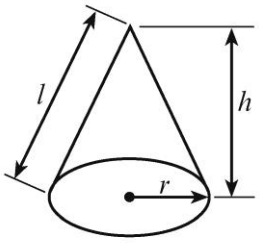
Volume of a sphere $= \frac{4}{3}\pi r^3$

Surface area of a sphere $= 4\pi r^2$



Volume of a cone $= \frac{1}{3}\pi r^2 h$

Curved surface area of a cone $= \pi rl$



Annual Equivalent Rate (AER)

AER, as a decimal, is calculated using the formula $\left(1+\frac{i}{n}\right)^n - 1$, where i is the nominal interest rate per annum as a decimal and n is the number of compounding periods per annum.

Answer **all** questions.

Examiner only

1. The Physical Education (PE) department in Ysgol Ddwysaint wants to test the following hypothesis:

'Most pupils in Year 11 spend less than $2^1/_2$ hours per week doing exercise.'

(a) Part of the questionnaire they will give to pupils in Year 11 asks the following question:

How many hours do you spend exercising?

0 to 1	2 to 3	4 to 5	6 to 7
☐	☐	☐	☐

Give two reasons why the question is not suitable. [2]

Reason 1:

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Reason 2:

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(b) The PE department plans to give out the questionnaire to Year 11 pupils studying GCSE Physical Education and Health.

Give **one** criticism of this plan. [1]

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2. Mr Bevan used 660 kWh of electricity during September, October and November last year. [5]
For the same 3-month period this year, he assumes his usage of electricity will not change.

Examiner only

Mr Bevan has the following information about electricity charges this year.

- The standing charge is £15 **per month**
- Electricity costs 29p per kWh
- VAT at 5% is payable on the total of the standing charge and the cost of the electricity used.

Calculate how much Mr Bevan's electricity bill will be for the 3-month period of September to November this year.

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3. Hisako bought a number of shirts to sell in her shop during the summer. [5]

The shirts cost Hisako £14 each to buy.

During the summer, Hisako sold each shirt at a price that was 35% more than what she paid for them.
At the end of summer, Hisako puts the shirts she has left on sale.
In the sale, she reduces the selling price by one fifth of the original selling price.

How much profit will Hisako make on each shirt that she sells in the sale?

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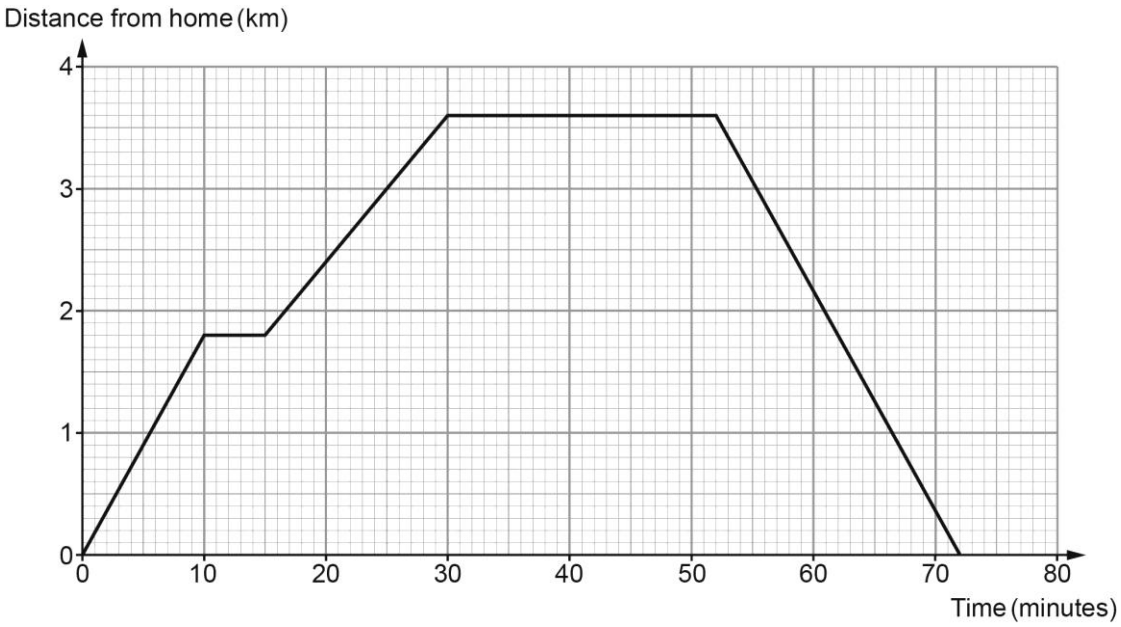
Examiner only

Examiner only

4. Nerys travelled by bike along a straight road to visit her friend.
The travel graph below shows Nerys's journey.
On the way to her friend's house, she stopped at a shop.
She stayed at her friend's house for some time. Then, she travelled home.



(a) How far had Nerys travelled in total after an hour? [2]

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(b) Nerys started her journey at 10:00. [2]
At what time did she return home?

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Examiner only

(c) Nerys's bike has a computer that displays data about her journey.
When the bike is moving, it measures distance travelled and time taken.
What average speed did the computer show at the end of Nerys's journey?

Give your answer in kilometres per hour. [3]

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5. Sian and Kim are saving to buy an electric guitar that they will share.
The guitar they want to buy costs £385.

Sian and Kim will pay for the guitar in the ratio 5 : 6 respectively.
They will each save over the next 4 weeks.
Sian will put an equal amount of money aside per week.
Kim will also put an equal amount of money aside per week.

Calculate how much money Sian and Kim will need to save per week to pay for the guitar. [3]

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Sian will save £ …… per week

Kim will save £ …… per week

Examiner only

6. *In this question, you will be assessed on the quality of your organisation, communication and accuracy in writing.*

Hefin is going on holiday to France.
The conversion rate at his local exchange shop is £1 = €1.19.
The exchange shop only has €20 notes and €50 notes.
Hefin would like to spend as close to £450 as possible when buying euros.

Calculate:

- how many euros Hefin will get when spending as close to £450 as possible
- how much he pays for his euros.

You must show all your working. [5 + 2 OCW]

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Hefin will get …….. euros

This will cost him £ ……..

Examiner only

7. Muhammad earns £58 000 before income tax.

One of the income tax bands states:

- Higher rate of 40% is payable on income above £50 000.

(a) Calculate how much tax Muhammad pays at the higher rate. [2]

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(b) Muhammad pays a total of £10 500 in income tax each year. [4]

The other tax bands state:

- No income tax is payable below the personal allowance
- Basic rate of 20% is payable on income above the personal allowance and up to £50 000

Calculate the value of the personal allowance.

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Value of the personal allowance is £ ……

Examiner only

8. Isabelle has created a flowerbed in the shape of a trapezoidal prism.
The plan view of the flowerbed is shown in the diagram below.

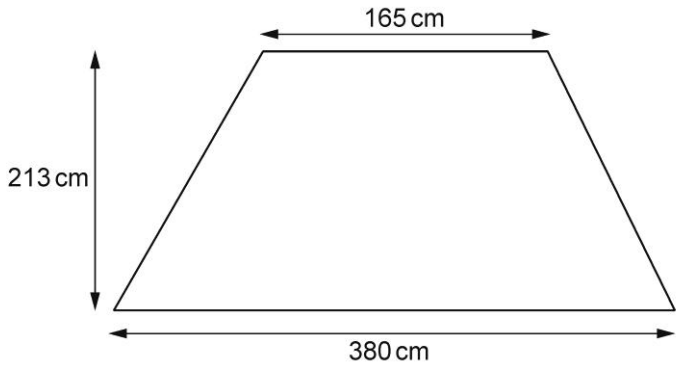

Diagram not drawn to scale

Isabelle is going to buy enough compost to fill the flowerbed to a uniform depth of 30 cm.

(a) Calculate the volume of compost Isabelle will need. [4]
Give your answer in **litres**.

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Examiner only

(b) The price of a 50-litre bag of compost has changed each year.
The price has increased by 6% per annum for each of the last 5 years.
Before this, the price had decreased by 2% per annum for 2 years.
Seven years ago, the price of a 50-litre bag of compost was £8.

Calculate the price of a 50-litre bag of compost this year. [3]

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Examiner only

9. The table below shows some facts, found on the internet, about the Principality stadium in Cardiff.

1206603729 May 22, 2020	Principality stadium in Cardiff 
Volume	1 500 000 m^3
Capacity	74 500 people
Cost to build	£152 million
Area of the stadium	4×10^4 m^2
Area of the pitch	9.48×10^3 m^2

(a) (i) The stadium has a volume of 1 500 000 m^3. [1]
Write this number in standard form.

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(ii) The pitch at the Principality stadium makes up part of the area of the stadium. [2]

Calculate the area of the pitch as a percentage of the area of the stadium.

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(iii) The stadium cost £152 million to build. [3]
This was 43% greater than the planned cost.

Calculate the planned cost to build the stadium.

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Planned cost was £ …….. million

Examiner only

(b) The pitch at the Principality stadium measures 120 m by 79 m.
Both measurements are correct to the nearest 0.5 m.

Calculate the greatest possible perimeter of the pitch. [2]

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(c) Before a rugby match at the stadium, the manager decides to hand out 8 food vouchers among the first 200 people queueing at one of the stadium gates.

The manager decides to use a systematic sampling method to select who receives these 8 vouchers.
The manager randomly selects the 20th person in the queue to receive the first voucher.

Use the table below to give the positions in the queue of the 8 people who would receive vouchers. [2]

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Voucher	1	2	3	4	5	6	7	8
Position in the queue	20th	…….	……...	…….	…….	…….	…….	…….

Examiner only

10. Hatkins is a company that builds new houses.

(a) Hatkins employs painters to paint new houses once they are built.
In one house, 4 painters take 7 hours to paint some rooms that have a total wall and ceiling area of $85\,m^2$.

In a different house, some rooms have a total wall and ceiling area of $125\,m^2$.
Hatkins has allocated 5 hours for these rooms to be painted.

(i) Calculate the least number of painters needed. [4]
You must show all your working.

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(ii) What assumption have you made in answering part (a)(i)? [1]

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Examiner only

(b) The table below shows the number of staff Hatkins employs in different job types.

Job type	Painters	Bricklayers	Plumbers	Electricians
Number of staff	15	40	21	29

Hatkins is going to create a committee of 20 of its staff that will organise social and team-building activities.

Use a stratified sampling method to calculate the number of staff from each job type that Hatkins should have on the committee.

You must show all your working. [4]

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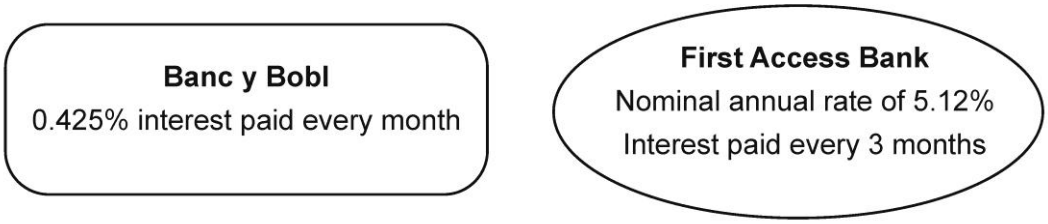
Job type	Painters	Bricklayers	Plumbers	Electricians
Number of staff on the committee	……	……	……	……

Examiner only

11. Mari wants to invest some money in a savings account.
Mari's two local banks offer savings accounts.
Details of the two accounts are shown below.



By comparing AERs, decide which bank Mari should choose to receive the most interest per annum.

[5]

You must show all your working.

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Mari should invest her money in……..

Examiner only

12. Matthew is buying a new car, priced at £22 000.

He has some money to pay as a deposit, and then he will be taking out a loan from his bank to pay the balance.

The details of his finance agreement are shown below.

Deposit	£5000
Loan amount	£17 000
Loan period	7 years
Annual Percentage Rate (APR)	7.5%

Matthew will be making monthly repayments to pay back the loan in 7 years.
The formula for calculating the monthly repayment on a loan is

$$M = \frac{r \times L}{1 - (1 + r)^{-n}}$$

where:

- M is the amount of each monthly repayment
- L is the loan needed
- r is the **monthly** interest rate as a decimal
- n is the number of **months** taken to pay back the loan.

(a) Calculate Matthew's monthly repayment on the loan. [3]
Give your answer correct to the nearest penny.

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Matthew's monthly repayment is £ ……correct to the nearest penny.

(b) If Matthew took out the loan over 6 years, his monthly repayments would be £293.93.

Calculate the saving Matthew would make on the total amount paid for the car if he took out the loan for 6 years rather than 7 years. [2]

Examiner only

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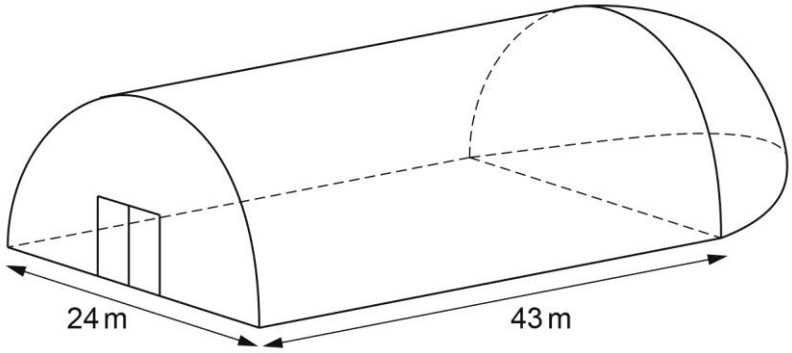
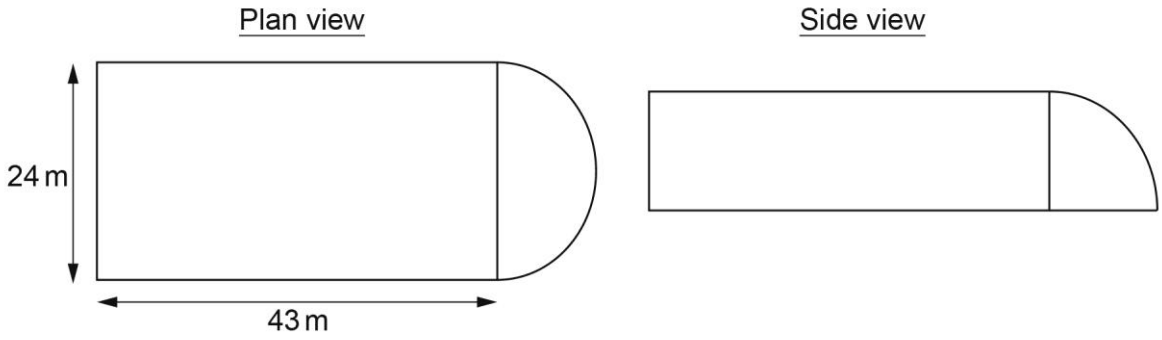
Examiner only

13. Based on A17 Num U2H Qu9c
A building used for storage is shown below.

The building is in the form of half a cylinder, with half a hemisphere attached at one end.





Diagrams not drawn to scale

All the exterior surfaces of the building, including the doors are to be painted.

The measurements on the diagram are given **correct to the nearest metre**.
The paint comes in tins that cover an area of 40 m^2, **correct to the nearest m^2**.

Calculate the minimum number of tins that would guarantee having enough paint to cover these exterior surfaces. [8]

Examiner only

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END OF QUESTIONS

Question number	Additional page, if required. Write the question number(s) in the left-hand margin.

Examiner only

Mark Scheme

GCSE Mathematics and Numeracy Unit 1: Higher Tier SAMs	Mark	Comments
1(a) Any 2 of the following statements e.g. 'No time frame e.g. per day, per week etc', 'Groups are not continuous e.g. no group for 1.5 hours', 'No group if you exercise for more than 7 hours'	E2	Ignore additional spurious comments E1 for 1 correct statement
1(b) A criticism regarding e.g. '(Not representative of Year 11 as a whole as) most GCSE PE pupils will do more than 2.5 hours of exercise each week', or '(Not representative of Year 11 as a whole as) not many of these pupils will do less than 2.5 hours of exercise each week', or 'Most GCSE PE pupils are likely to do more exercise than Yr 11 pupils in general'	E1	Ignore additional spurious comments Accept e.g. 'Not a representative sample of Year 11', or 'Wouldn't represent Year 11 as a whole'
2. (Electricity cost is) 660 × 0.29 or 660 × 29 = (£) 191.4(0) or 19140 (p) (Standing charge + electricity is) (£) 236.4(0) or 23640 (p) (Total bill including VAT is) 1.05 × 236.4(0) or 1.05 × 23640 = (£) 248.22 or 24822 (p)	M1 A1 B1 M1 A1	 If units are given, they must be correct FT 45 + 'their 191.4(0)' or 4500 + 'their 19140' FT 'their (£) 236.4(0)' or 'their 23640 (p)' including if standing charge omitted Only FT if 5% has been added correctly to 'their (£) 236.4(0)' or 'their 23640 (p)'
3. (Selling price =) 14 × 1.35 or equivalent (=£18.9(0)) (Sale price =) 18.9(0) × (1 − 1/5) or equivalent (Sale price =) (£)15.12 (Profit =) (£) 1.12	 M1 M1 A2 B1	M1 marks can be performed in either order FT 'their 18.9(0)' × (1 − 1/5) A1 for any of the following: • (14 × 1.35 = £) 18.9(0) • (14 × 4/5 = £) 11.2(0) • 'their 14 × 1.35' × (1 − 1/5) correctly evaluated, allowing truncation or rounding to the nearest penny if applicable • 'their 14 × (1 − 1/5)' × 1.35 correctly evaluated, allowing truncation or rounding to the nearest penny if applicable FT 'their 15.12' – 14 provided at least M1 previously awarded

3. <u>Alternative method:</u> *(Fractional profit =) 1.35 × (1 − 1/5) – 1 or equivalent* *OR* *(Percentage profit =) 135% × 80% – 100%* *= 0.08 or 2/25 or 8%* *(Profit =) 0.08 × 14 or 2/25 × 14 or 8/100 × 14 or equivalent* *= (£) 1.12*	*M2* *A1* *M1* *A1*	*Award M1 for any one of the following:* • *1.35 × (1 − 1/5) or equivalent (= 1.08 or 27/25)* • *135% × 80% (= 108%)* *FT 'their 0.08' or equivalent provided at least M1 previously awarded*
4(a) 5 (km)	B2	B1 for any one of the following: • 3.6 + (3.6 – 2.2) allowing for 1 slip, possibly repeated, in reading the scale • 3.6 + 1.4 allowing for a slip in the reading of 3.6
4(b) 11:12	B2	Accept 11:12 a.m. B1 for sight of 1 hour 12 minutes (or 1:12)
4(c) (Average speed =) $3.6 \times 2 \div \frac{(10 + 15 + 20)}{60}$ or $\frac{7.2}{0.75}$ or equivalent = 9.6 (km/h)	M2 A1	Allow M1 for any one of the following: • use of 7.2 ÷ 'their time', including use of 45 • use of …… ÷ (10 + 15 + 20) • use of …… ÷ 45 • use of 0.75 FT from M1 for any one of the following: • 7.2 ÷ 'their time', including use of 45, correctly evaluated • 'their distance' ÷ 0.75 correctly evaluated
5. $\frac{385}{5 + 6} \times 5$ (÷4) or $\frac{385}{5 + 6} \times 6$ (÷4) (Sian will save) (£) 43.75 AND (Kim will save) (£) 52.5(0)	M1 A2	Answer space takes precedence A1 for any one of the following: • Correct answers but in the wrong order • (Sian will save) (£) 43.75 • Kim will save (£) 52.5(0) • (Sian) (£) 175 AND (Kim) (£) 210

6. (Change to €) 450 × 1.19 = (€) 535.5(0) (Only €20 and €50 notes so closest he can buy) (€) 540 (Cost in £ to buy € 540 is) 540 ÷ 1.19 or 450 + 4.5(0) ÷ 1.19 = (£)453.78(151…)	M1 A1 A1 M1 A1	FT 'their (€) 535.5(0)' (provided not a multiple of 20 or 50) rounded down or up to the closest multiple of 10 (that is greater than 30) May be implied by (€) 4.5(0) more needs to be bought (€) 540 implies previous M1A1 provided not from incorrect working FT 'their 540' provided it is a multiple of 10 or FT 'their 4.5(0)'
Organisation and communication Writing	OC1 W1	For OC1, candidates will be expected to: • present their response in a structured way • explain to the reader what they are doing at each step of their response • lay out their explanations and working in a way that is clear and logical • write a conclusion that draws together their results and explains what their answer means For W1, candidates will be expected to: • show all their working • use correct mathematical form in their working • use appropriate terminology, units, etc.
7(a) (Tax at 40%) 0.4 × (58 000 – 50 000) or 0.4 × 8000 or equivalent = (£)3200	M1 A1	
7(b) (Amount of tax at 20% = 10 500 – 3200 =) (£)7300 $\frac{7300}{0.2}$ or 7300 × 5 = (£)36 500 (Personal allowance is) (£)13 500	B1 M1 A1 A1	FT 10 500 – 'their 3200' from (a) FT 'their 7300' provided < 10 500 Allow M1 for 0.2 × x = 7300 CAO FT from M1A0 for 50 000 – 'their 36 500' provided > 0

8(a) (Volume of flowerbed =) $\frac{1}{2} \times (380 + 165) \times 213$ $\times 30$ $= 1\,741(.275)$ (litres)	 M1 m1 A2	 A1 for $1\,741\,275$ (cm^3)
8(b) $8 \times 0.98^2 \times 1.06^5$ Answer in the range (£)10.27 to (£)10.29	M2 A1	OR equivalent method to decrease by 2% and to increase by 6% on different amounts *$(8 \times 0.98^2 = 7.6832)$* *$(8 \times 1.06^5 = 10.7058\ldots)$* M1 for sight of either • 8×0.98^2 (× …) or equivalent OR • 8×1.06^5 (× …) or equivalent CAO
9(a)(i) 1.5×10^6	B1	
9(a)(ii) $\frac{9.48 \times 10^3}{4 \times 10^4}$ (× 100) or equivalent = 23.7 (%)	M1 A1	 Allow 24% from correct working
9(a)(iii) 143% = 152(000 000) (Planned cost =) $\frac{152(000\,000)}{1.43}$ or equivalent = (£)106(.29 million)	B1 M1 A1	 Needs to be a complete method e.g. 152(000 000) ÷ 143 × 100 Allow (£) 106 293 706.3… to be rounded appropriately e.g. (£) 106 000 000 or (£) 106 300 000 or (£) 106 290 000 Award A0 for an answer of 100 000 000
9(b) (Greatest possible perimeter =) 120.25×2 + 79.25×2 or equivalent = 399 (m)	M1 A1	Allow M1 for use of 120 < 'their 120.25 ≤ 120.5 and 79 < 'their 79.25' ≤ 79.5 CAO
9(c) (200 ÷ 8 =) 25 or 200 ÷ 25 = 8 or 8 × 25 = 200 1 2 3 4 5 6 7 8 20 45 70 95 120 145 170 195	B1 B1	B1 may be implied by consistent position pattern +25 indicated, or B1 allowed for sight of 45 for voucher 2 CAO

10(a)(i) 4 $\times \frac{7}{5}$ or $\times 1.4$ or equivalent $\times \frac{125}{85}$ or $\times 1.47(058\ldots)$ or equivalent = 9 (painters)	 M1 M1 A2	<u>A table method altering all 3 values in the same ratio at the same time is M0</u> M marks may be seen in either order e.g. <u>Hours</u> <u>Area</u> <u>Painters</u> 5 85 5.6 **FT from M0 previously awarded** Must be from use of 4 e.g. if this calculation is performed first <u>Hours</u> <u>Area</u> <u>Painters</u> 7 125 5.8(823…) CAO A1 for 8(.235…) OR A1 on FT from only M1 mark previously awarded for their final answer rounded up, provided their final answer is not an integer
10(a)(i) <u>Alternative method 1</u>: *(Area painted per hour per painter =)* *85 ÷ 7 ÷ 4 (= 3.03(571…))* *(Number of painters needed =)* *125 ÷ ((85 ÷ 7 ÷ 4) × 5)* *= 9 (painters)*	 *M1* *M1* *A2*	 *CAO* *A1 for 8(.235…) OR* *A1 on FT from M1M0 previously awarded for their final answer rounded up, provided their final answer is not an integer*
10(a)(i) <u>Alternative method 2:</u> <u>Hours</u> <u>Area</u> <u>Painters</u> *10.2(941…)* *125* *4* *OR* *5* *60.7(142…)* *4* *4 × <u>10.2(941…)</u> OR 4 × <u>125</u> or 4 × 2.058(823…)* *5* *60.7(142…)* *or equivalent* *= 9 (painters)*	 *M1* *M1* *A2*	 *FT from 4(painters), 125 (m^2), n (hours) for $4 \times \frac{n}{5}$* *OR* *FT from 4(painters), n (m^2), 5 (hours) for $4 \times \frac{125}{n}$* *CAO* *A1 for 8(.235…) OR* *A1 on FT from M1M0 previously awarded for their final answer rounded up, provided their final answer is not an integer*
10(a)(ii) Valid assumption e.g. 'All painters work at the same rate (or speed)', 'They all paint 3(.03…) (m^2) in an hour' 'Each painter is equally efficient'	B1	Do not accept e.g. 'The rooms (or walls) are the same shape', 'They don't have breaks', 'Each painter works at a constant speed'

10(b) $20 \times \frac{\text{number of staff}}{(15+40+21+29)}$ or $20 \times \frac{\text{number of staff}}{105}$	M1	Sight of this calculation for any job type
(Number of plumbers =) 4	A1	
(List of unrounded answers) 2.8(57…) or 2.86 or 2.9, 7.6(190…), 5.5(238…)	A1	OR A1 for 3, 8, 6 Implies the award of M1
(Number in sample =) 3, 8, 4, 5	A1	If M1A1A0 awarded, A1 for 3, 8, 4, 5 provided their unrounded answers would not lead to different numbers in the sample, OR A1 on FT from their unrounded answers, provided: • any 2 or 3 unrounded answers are correct, AND • the correct numbers in the sample are given for their unrounded answers (including any decisions regarding rounding down), AND • the sample numbers add to 20 If no working shown, award SC2 for 3, 8, 4, 5
11. Banc y Bobl $1.00425^{12} - 1$ OR $\left(1+\frac{0.051}{12}\right)^{12}-1$	M1	
= 0.0522(091…) or 5.22(091…)%	A1	Accept 0.052 or 5.2% provided not from incorrect working Do not accept 0.052(…) % unless corrected in further work
First Access Bank $\left(1+\frac{0.0512}{4}\right)^{4}-1$	M1	
= 0.0521(914…) or 5.21(914…)%	A1	Accept 0.052 or 5.2% provided not from incorrect working Do not accept 0.052(…) % unless corrected in further work
(Mari should invest in) Banc y Bobl	B1	FT 'their 0.0522(091…) or 5.22(091…)%' AND FT 'their 0.0521(914…) or 5.21(914…)%' provided at least one M1 mark previously awarded and their values are accurate enough to allow comparison

12(a) (Monthly payments =) $\frac{\frac{0.075}{12}\times(22000-5000)}{1-\left(1+\frac{0.075}{12}\right)^{-7\times12}}$ OR $\frac{0.00625\times17000}{1-(1+0.00625)^{-84}}$ or equivalent	M2	M1 for an expression with only 1 (possibly repeated) incorrect substitution, but do not allow use of r = 7.5
= (£)260.75	A1	Accept (£)260.75(068…)
12(b) 260.75×7×12 − 293.93×6×12	M1	FT 'their (£)260.75' from (a) Allow use of their unrounded answer to part (a) and their unrounded (£)293.93 if the formula has been used to calculate it
= (£)740.04	A1	Use of: • (£)260.75(068…) leads to (£)740.09(79…) or 740.10 • (£)260.75(068…) and (£)293.93(19…) leads to (£)739.96
13. MS based on MS for A17 Num U2H Qu9c		Accept use of ·4999… and 12·24999… throughout, but not ·49 and 12·249 Accept values of π of between 3.14 and 3.142 throughout
(Surface area of half-hemisphere =) $(4\times\pi\times12{\cdot}25^2)\div4$ or equivalent	B1	(= 471 to 471·6… (m^2)) Allow B1 for 11·5 ≤ 'their 12.25' ≤ 12·5
(Curved surface area of half cylinder =) $(\pi\times24{\cdot}5\times43{\cdot}5)\div2$ or equivalent	B1	(= 1673 to 1674·75 (m^2)) Allow B1 for 23 ≤ 'their 24.5' ≤ 25 AND 42 ≤ 'their 43.5' ≤ 44
(Total surface area =) $(4\times\pi\times12{\cdot}25^2)\div4 + (\pi\times24{\cdot}5\times43{\cdot}5)\div2 + (\pi\times12{\cdot}25^2)\div2$ (=471 to 471.6..) (1673 to 1674.5) (235.5 to 235.8..)	M3	Bounds need to be correct for M3 M2 for summing any 2 fully correct terms M1 for $(4\times\pi\times12{\cdot}25^2)\div4 + (\pi\times24{\cdot}5\times43{\cdot}5)\div2 + (\pi\times12{\cdot}25^2)\div2$ where 12 < 'their 12.25' ≤ 12.5 and 24 < 'their 24.5' ≤ 25 and 43 < 'their 43.5' ≤ 44
= 2379·5 to 2382 (m^2)	A1	CAO
(Number of tins needed =) (2379·5 to 2382) ÷ 39·5	M1	(= 60·2… to 60·3) FT 'their 2379.5 to 2382' Allow M1 only for use of 39 ≤ 'their 39.5 < 40
= 61 (tins)	A1	FT a correctly rounded up answer to their calculation, and must be from dividing by 39.5

How to read the mark scheme

- ‘M' marks are awarded for any correct method applied to appropriate working, even though a numerical error may be involved. Once earned they cannot be lost.
- ‘m’ marks are dependant method marks. They are only given if the relevant previous ‘M’ mark has been earned.
- ‘A' marks are given for a numerically correct stage, for a correct result or for an answer lying within a specified range. They are only given if the relevant M/m mark has been earned either explicitly or by inference from the correct answer.
- 'B' marks are independent of method and are usually awarded for an accurate result or statement.
- ‘S’ marks are awarded for strategy
- ‘E’ marks are awarded for explanation
- ‘U’ marks are awarded for units
- ‘P’ marks are awarded for plotting points
- ‘C’ marks are awarded for drawing curves
- ‘OC’ marks are awarded for ‘organising and communicating’, a strand of OCW (organising, communicating and writing accurately)
- ‘W’ marks are awarded for ‘writing accurately’, a strand of OCW (organising, communicating and writing accurately)
- ‘SC’ marks are awards for special cases
- CAO: correct answer only
- ISW: ignore subsequent working
- FT: follow through

Assessment mapping

Q.	Topic	Max mark	AO1	AO2	AO3	Common Qn (Fn)	Common marks (Fn)	OCW
1								
1	PE questionnaire	3	3			7	3	
2	Mr Bevan's electricity bill	5		5		8	5	
3	Hisako's profit - % increase, fractional decrease	5		5				
4	Nerys' travel graph - speed, share in a ratio	7		4	3	9	7	
5	Saving to buy a guitar - ratio	3		3		10	3	
6	Hefin's holiday - exchange rate	7		7				*
7	Muhammad's income tax	6	2		4			
8	Flowerbed - vol trap prism, rep % change	7	7			11	4	
9	Principality - st form, perc, rev %, bounds, sys samp	10	8	2				
10	Building company - proportionality, strat sampling	9	4	5				
11	Comparing AERs	5		5				
12	Car loan - APR, monthly payments	5	3	2				
13	Painting a storage building - surface area, bounds	8			8			
	Totals	**80**	**27**	**38**	**15**		**22**	