

Surname	Centre Number	Candidate Number
Other Names		0



GCSE

3310U20-1



**MATHEMATICS – NUMERACY
UNIT 2: CALCULATOR-ALLOWED
FOUNDATION TIER**

WEDNESDAY, 8 NOVEMBER 2017 – MORNING

1 hour 30 minutes

ADDITIONAL MATERIALS

A calculator will be required for this paper.
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 at the top of this page.
Answer **all** the questions in the spaces provided.
If you run out of space, use the continuation page at the back of the booklet. Question numbers must be given for all work written on the continuation page.
Take π as 3.14 or use the π button on your calculator.

For Examiner's use only		
Question	Maximum Mark	Mark Awarded
1.	19	
2.	7	
3.	6	
4.	6	
5.	5	
6.	6	
7.	4	
8.	12	
Total	65	

INFORMATION FOR CANDIDATES

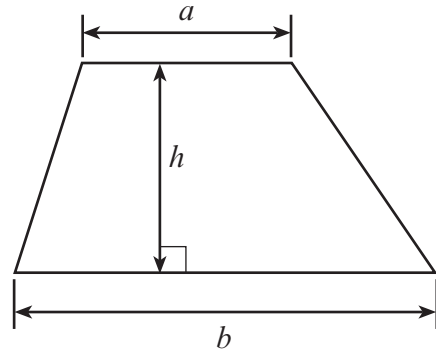
You should give details of your method of solution when appropriate.
Unless stated, diagrams are not drawn to scale.
Scale drawing solutions will not be acceptable where you are asked to calculate.
The number of marks is given in brackets at the end of each question or part-question.
In question 1(a), the assessment will take into account the quality of your linguistic and mathematical organisation, communication and accuracy in writing.



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Formula List - Foundation Tier

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



1. (a) In this part of the question, you will be assessed on the quality of your organisation, communication and accuracy in writing.

Evan wants to book a holiday in Cyprus for one week.
He finds a holiday using the internet.



Hotel Amathas * * * *

£860 per adult for one week
£500 per child for one week
(HALF BOARD)

UPGRADES (for one week)
FULL BOARD extra £80 per adult, extra £55 per child
Extra £115 for a room with a sea view.

DISCOUNT
10% discount for payment in full at the time of booking.

*Half board includes breakfast and evening meal.
Full board includes breakfast, lunch and evening meal.*

- Evan wants to book one room for two adults and one child.
- He wants an upgrade to full board for all three people.
- He wants a room with a sea view.

Evan pays in full when he books the holiday.
Work out the total cost.
You must show all your working.

[6 + 2 OCW]



(b) Evan and his family will fly from Cardiff Airport to Larnaca International Airport in Cyprus.

	 Sun 5 Aug 2018
	Leave Cardiff 15:00 (UK time)
	Arrive Larnaca 22:00 (Cyprus time)
	Cyprus time is 2 hours ahead of UK time.

How long will this flight take?

[2]

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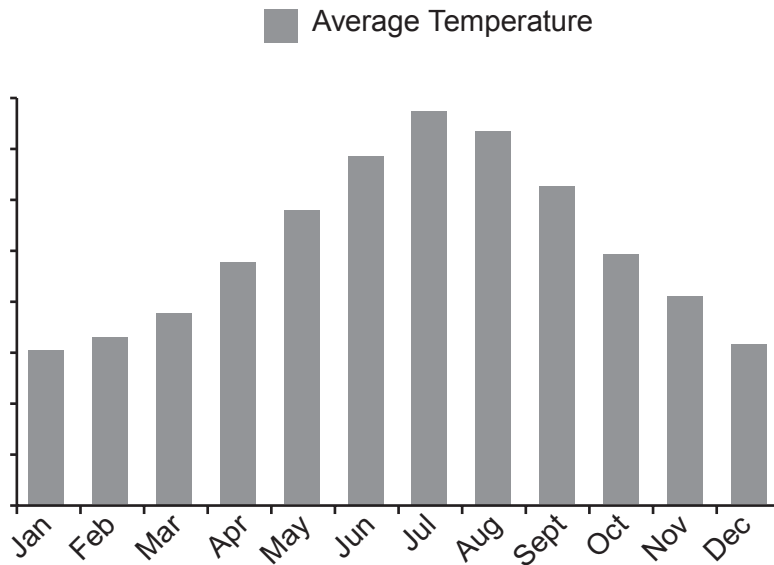
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(c) Evan sees this graph on a website.
It shows information about the weather in Larnaca.



Give **one** criticism of this graph.

[1]

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(d) Evan sees this information about the average monthly rainfall, in mm, in Larnaca.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rainfall (mm)	78	64	34	19	7	2	1	1	6	18	66	94

(i) Which of the words below best describes the chance that it will rain in Larnaca on any given day in **August**?
Circle your answer. [1]

certain likely even chance unlikely impossible

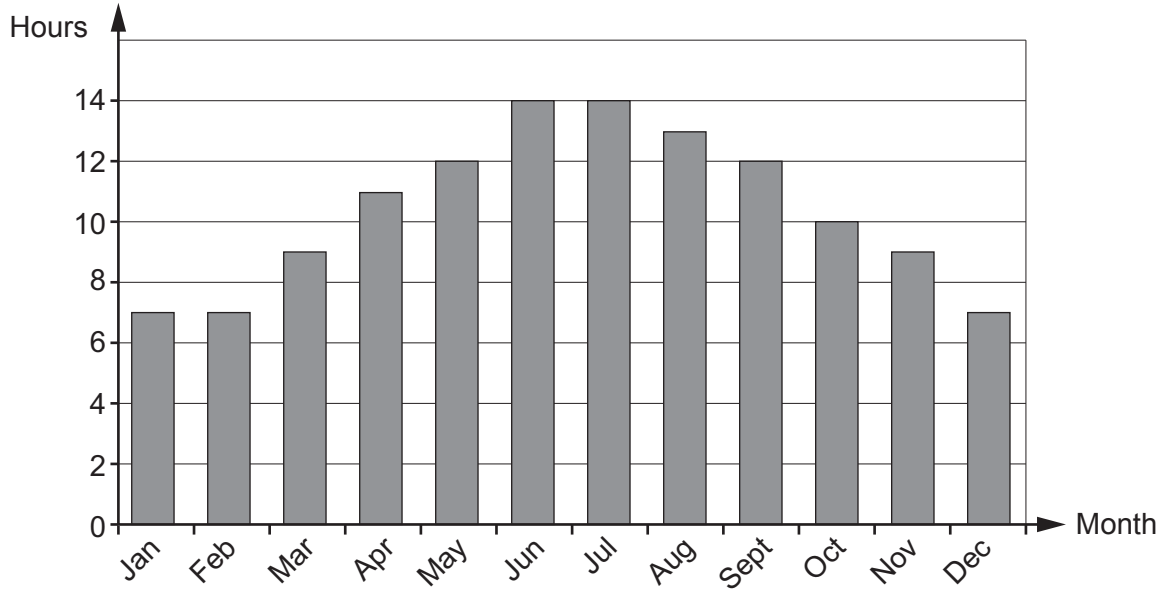
(ii) Which month has an average rainfall closest to **7 centimetres**?
Circle your answer. [1]

January February May September November

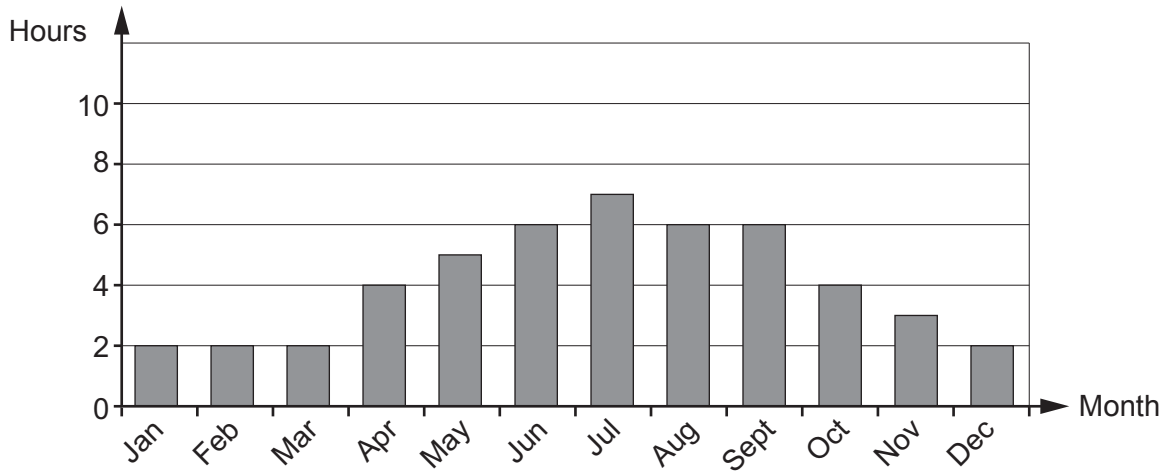


(e) Evan uses internet graphs to compare the average daily sunshine hours in Cardiff and Larnaca.

Average daily sunshine hours in Larnaca



Average daily sunshine hours in Cardiff



(i) In Larnaca, which month had an average of 11 daily sunshine hours? [1]

Month

(ii) Find the number of **extra** average daily sunshine hours in Larnaca compared with Cardiff in June. [2]

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(f) Evan sees this information about the **highest** daily temperature for each month in Larnaca last year.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temperature (°C)	17	17	19	23	25	30	32	33	30	32	27	17

(i) What is the median of these temperatures? [2]

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(ii) Explain why the mode of these temperatures is not suitable as an average. [1]

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2. Declan has two pet rabbits.
He wants to buy a new rabbit hutch.



Declan finds a rule to work out the amount of floor space that each rabbit should have in the hutch.

$$\text{Floor space needed} = \text{mass of rabbit} \times 1800$$

Floor space is measured in cm^2 .
Mass is measured in kg.

- (a) Declan's larger rabbit weighs 3.2 kg.
What floor space should this rabbit have in the hutch? [2]

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- (b) Declan works out that his smaller rabbit needs 4860 cm^2 of floor space.
What is the mass of the smaller rabbit? [2]

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(c) Declan sees a hutch with a rectangular floor that measures 150 cm by 80 cm.
Show that this hutch has enough floor space for the two rabbits.
You must show all your working.

[3]

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3. Mair has an old family recipe for making Welsh cakes.

Ingredients for 10 Welsh cakes

- 8 ounces plain flour
- 4 ounces butter
- 3 ounces caster sugar
- 2 ounces currants
- 1 egg



(a) Mair wants to make 40 Welsh cakes.
Complete the recipe.

[1]

Ingredients for 40 Welsh cakes

32 ounces plain flour

..... ounces butter

12 ounces caster sugar

..... ounces currants

4 eggs

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(b) Flour is sold in packs weighing one kilogram each.
Mair knows that she needs 2 pounds of flour to make 40 Welsh cakes.
Is a one kilogram pack of flour enough?
Give a reason for your answer.

[1]

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(c) Mair sells Welsh cakes to a tearoom.
She sells 40 Welsh cakes every week for 12 weeks.
The weekly cost of making the Welsh cakes is £4.50.
She charges the tearoom 25p for each Welsh cake.
How much profit does Mair make in total over the 12 weeks?
Give your answer in £.

[4]

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Profit = £



4.



Raspberries cost £3.60 per kg



Pears cost £2.60 per kg

Rhys buys some raspberries and some pears.
Rhys weighs the fruit he buys.
The raspberries cost him £4.50.

- (a) Calculate the mass of the raspberries Rhys buys. [2]

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- (b) He finds that the mass of the pears is three times the mass of the raspberries.
How much change does Rhys get from £20 when buying the raspberries and pears?
You must show all your working. [4]

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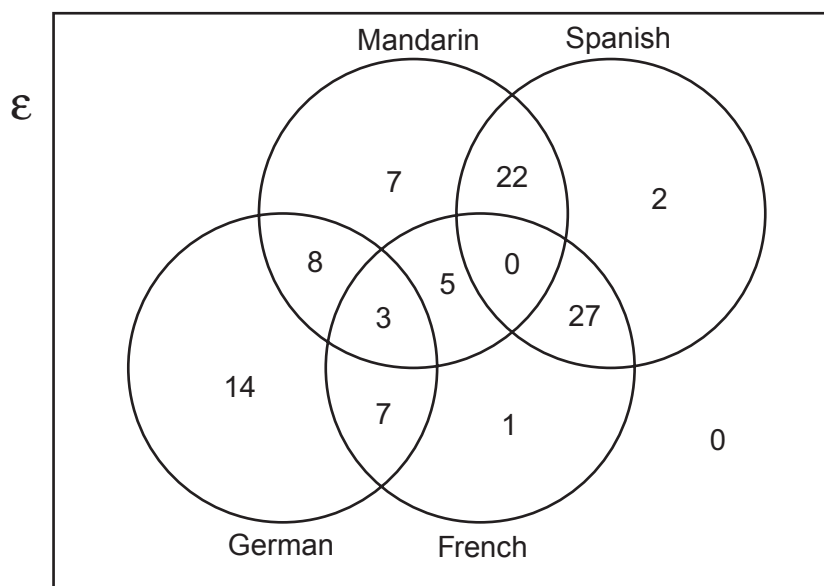


5. The Headteacher of Ysgol Maes Newydd gave *option forms* to all Year 9 pupils.

The form asked which foreign languages the pupils would like to study in Year 10.

There were 4 languages listed on the form: French, German, Spanish and Mandarin.
The pupils could select as many of the languages as they wished.
All pupils completed and returned the *option form*.

The Headteacher displayed the results in a Venn diagram, as shown below.



- (a) How many pupils did not select at least one of the four languages?
Circle your answer.

[1]

0 1 3 5 7

- (b) How many pupils are there in Year 9?
Circle your answer.

[1]

92 94 96 98 100

- (c) How many pupils selected only one language?

[1]



(d) The Headteacher can offer only 2 out of these 4 languages in Year 10.
She writes the timetable so that as many as possible of the pupils who chose 2 languages are able to study those 2 languages.
Which **two** languages will the Headteacher offer in Year 10?
You must show all your working and give a reason for your answer. [2]

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6. Lloyd has carried out a survey in his school.
He surveyed 300 pupils.
Below is a section from his questionnaire.

1. Which year group are you in?
2. Do you like the colours of the school uniform?
3. What is your favourite colour?

- (a) Afterwards, Lloyd thinks he should have given option boxes in questions 1 and 2. What could these option boxes be? [2]

Question 1:

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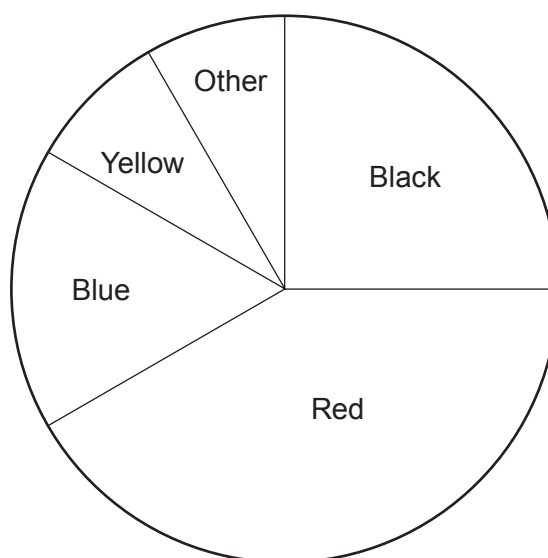
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Question 2:

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- (b) A pie chart displaying the results from question 3 of the questionnaire is shown below.



- (i) Which colour was chosen by 75 pupils as their favourite colour? Circle your answer. [1]

Black Red Blue Yellow Other

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- (ii) What fraction of the pupils said that blue was their favourite colour?
Give your answer in its simplest form. [3]

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7. (a) What is 3 hours 12 minutes in hours?
Circle your answer. [1]

3·102 hours 3·12 hours 3·15 hours 3·2 hours 3·25 hours

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- (b) The first 40 miles of a journey took 1 hour 15 minutes.
The remaining 80 miles were completed in 2 hours 15 minutes.
Calculate the average speed, in mph, of the 120-mile journey. [3]

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8. A newspaper report claimed the following:

- 12% of the world population is left-handed.
- Twice as many men as women are left-handed.
- 30% of the world population is mixed-handed.
Mixed-handed people prefer to use the left hand for some tasks and the right hand for others.
- It is very rare to be ambidextrous, that is being able to do all tasks equally well with either hand.

In 2011, Wales had a population of 3 063 000.

In 2014, Wales had a population of 3 092 000.

(a) Calculate the number of left-handed people living in Wales in 2011.
State what assumption you have made.

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Assumption:

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(b) In 2011, Wales had a population of 3 063 000.
1 559 000 of these people were women.

In 2011, what **percentage** of the population of Wales were **men**?
Give your answer correct to 1 decimal place.

[3]

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- (c) How many mixed-handed people do you think were living in Wales in 2014?
You must show your working.
Give your answer to the nearest 1000 people. [2]

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- (d) A country of 6 million people meets all the claims given in the newspaper report.
8% of the women in this country are left-handed.

There are 3 million men living in this country.
How many left-handed men would you expect there to be in this country? [4]

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END OF PAPER



