

Surname	Centre Number	Candidate Number
Other Names		0



GCSE

4351/01



S16-4351-01

MATHEMATICS (UNITISED SCHEME)

UNIT 1: Mathematics in Everyday Life

FOUNDATION TIER

A.M. THURSDAY, 26 May 2016

1 hour 15 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.

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, taking care to number the question(s) correctly.

Take π as 3.14 or use the π button on your calculator.

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.

You are reminded that assessment will take into account the quality of written communication (including mathematical communication) used in your answer to question 4.

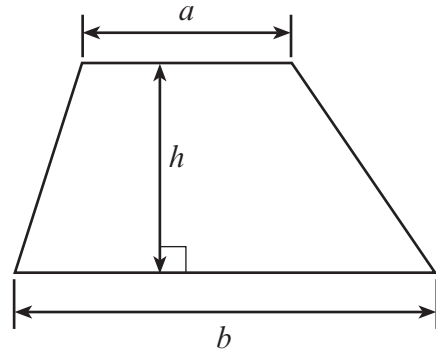
For Examiner's use only		
Question	Maximum Mark	Mark Awarded
1.	6	
2.	7	
3.	5	
4.	7	
5.	4	
6.	3	
7.	4	
8.	9	
9.	5	
10.	3	
11.	4	
12.	2	
13.	3	
14.	3	
Total	65	



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Formula List

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



Volume of prism = area of cross-section \times length



1. A builder uses the following formula when preparing a bill for his customers.

$$\text{Total cost} = \text{£}15 \times \text{number of hours worked} + \text{cost of materials}$$

- (a) Calculate the total cost when he worked for $7\frac{1}{2}$ hours and the cost of materials used was £107.50. [2]

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- (b) The customer paid 25% of the total cost using cash.
The customer paid the rest of the total cost by credit card.

- (i) How much money did the customer pay using cash? [2]

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- (ii) What **fraction** of the total cost did the customer pay using cash? [1]

.....

- (c) The builder started work on the $7\frac{1}{2}$ hour job at 08:00.

He had 1 hour off for lunch.

At what time did he finish this job? [1]

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2. A community cafe was set up to support a local charity. Over the summer, 40 volunteers helped out at the cafe. The number of days for which each volunteer helped out is shown below.

28	15	1	42	3	10	8	30	1	32
35	52	9	1	19	35	12	5	25	30
13	5	32	10	3	50	20	3	12	11
3	30	4	20	1	22	15	10	5	18

- (a) A table is drawn to show this information. Complete this table.

[3]

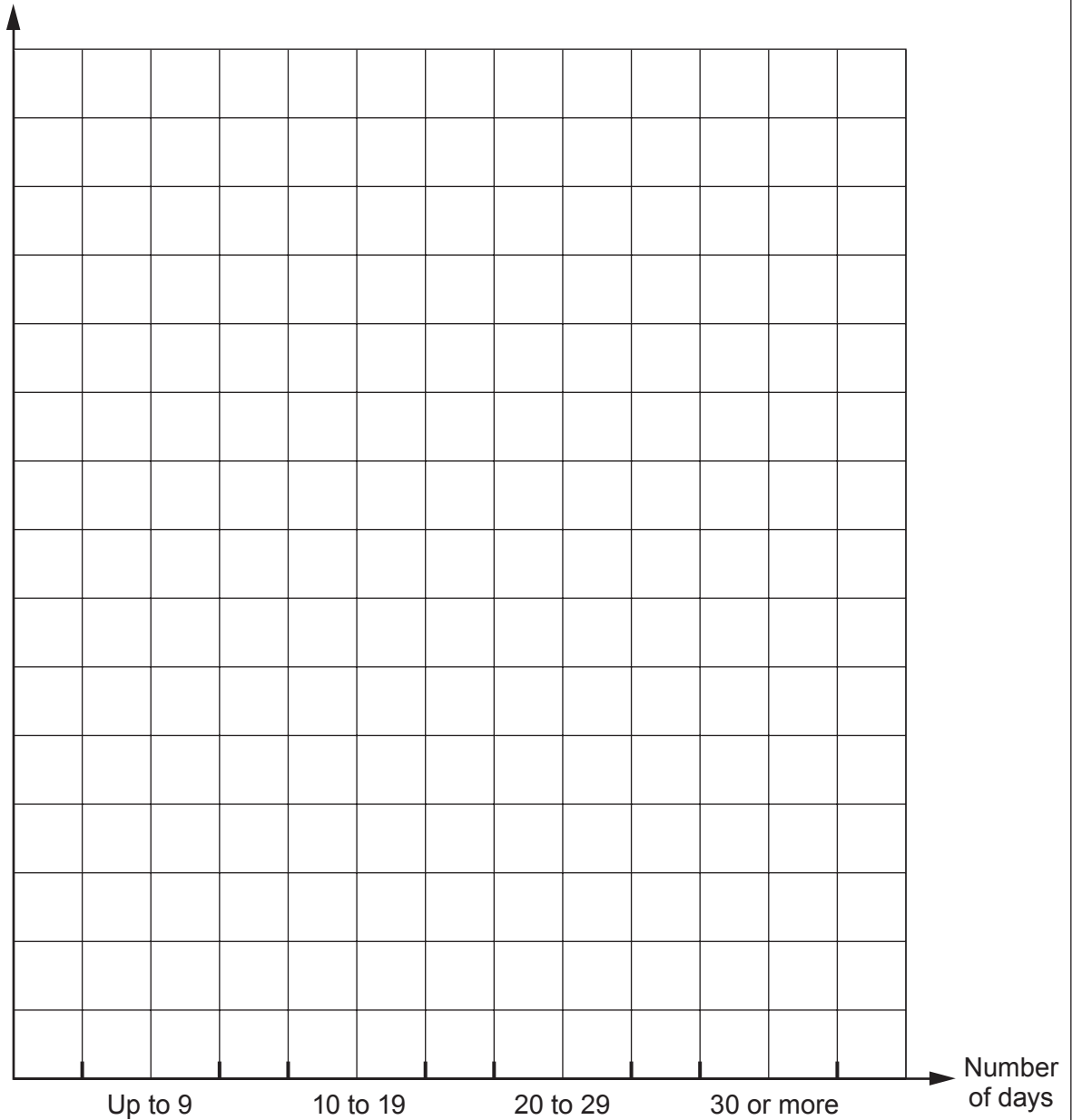
Number of days	Tally	Number of volunteers
Up to 9	 	14
10 to 19		
20 to 29		
30 or more		

- (b) Using the squared paper on the next page, draw a suitable bar chart that shows this information.

[3]



Number of volunteers



- (c) Explain why it is not possible to find the range of the number of days volunteered by looking at the bar chart alone. [1]

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3. Susan checks her water-meter reading every Monday morning. Five readings taken during August 2015 are shown below.

Date	3 rd August	10 th August	17 th August	24 th August	31 st August
Meter reading (m ³)	76.5	80.7	84.6	94.8	98.9

- (a) How much water was used between the 3rd of August and the 31st of August? [1]

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Water used =m³

- (b) How many weeks are there between the 3rd of August and the 31st of August? [1]

.....weeks

- (c) Calculate the mean amount of water that was used per week over this period of time. [2]

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- (d) On one day during this month, Susan left a garden sprinkler on all day which used 4.5 m³ of water. Write down a possible date on which this could have happened. [1]

Date



5. Three points A , B and C are to be shown on a plan whose scale is

1 centimetre represents 20 metres.

Point A and point B are already shown on the plan below.
Point C is further North than point B .

Angle ABC is 75° and the actual distance BC is 180 metres.

- (a) Show where point C should be on the plan.

[2]



A •

• B

- (b) What is the actual distance between point A and point C ?

[2]

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Actual distance between point A and point C =



6. Complete the table below which shows the change in the midday temperatures on two successive days at four locations. The first row has been done for you. [3]

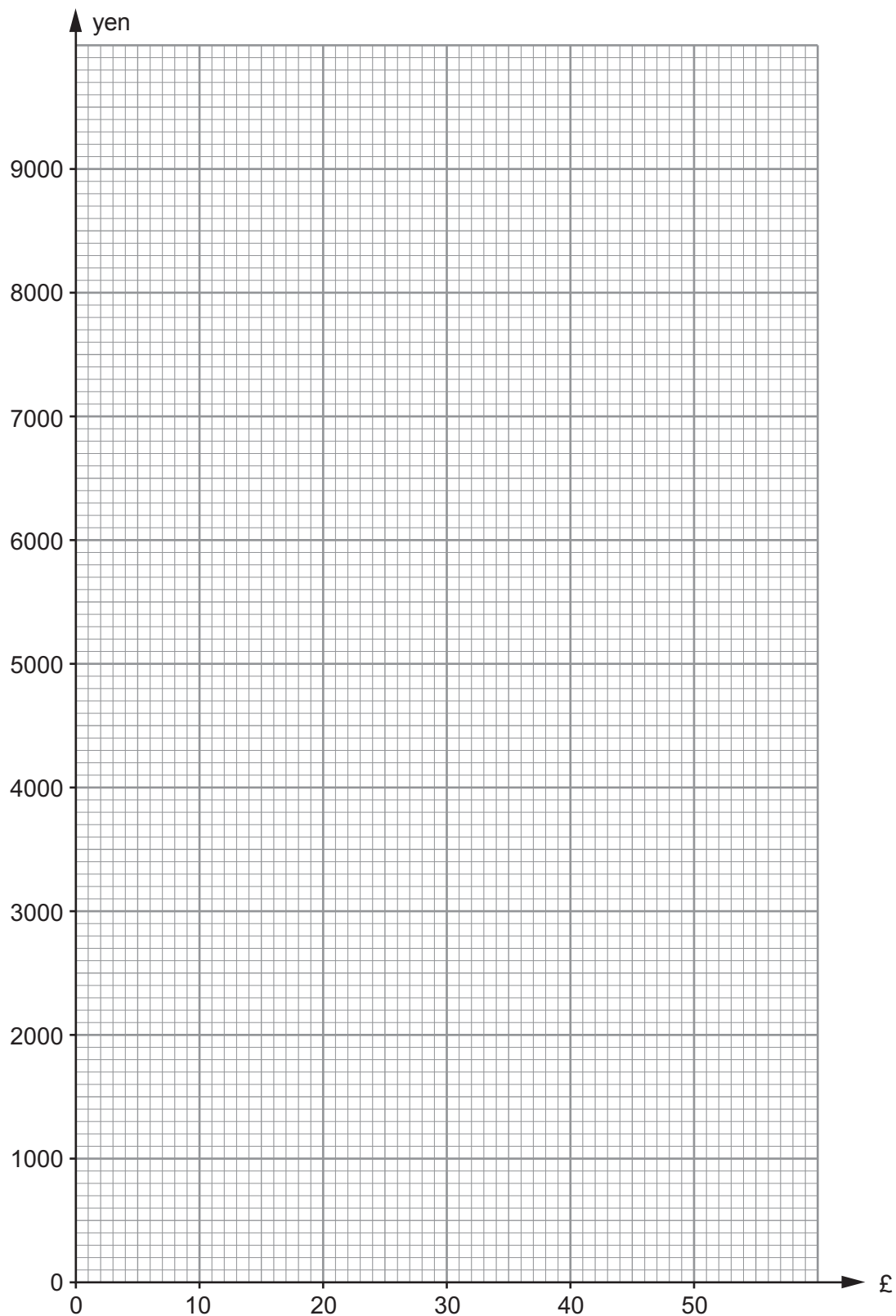
Location	Temperature at midday on the first day (°C)	Change (°C)	Temperature at midday on the following day (°C)
Holyhead	-2	Up 3	1
Paris	4		-1
Helsinki	-5	Down 2	
Glasgow		Up 1	0



9. Dylan is going on a trip to Japan.
The exchange rate at the time of his trip is $\text{£}1 \equiv 175 \text{ yen}$.

(a) Draw a conversion graph between £ and yen on the graph paper below.
The graph should show the conversion from $\text{£}0$ to $\text{£}50$.

[3]



(b) Use your graph, or otherwise, to convert 20 000 yen into pounds.
Give your answer correct to the nearest pound.

[2]

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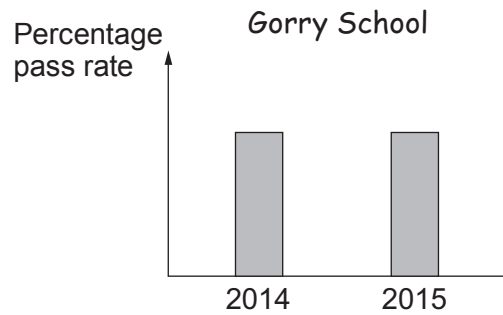
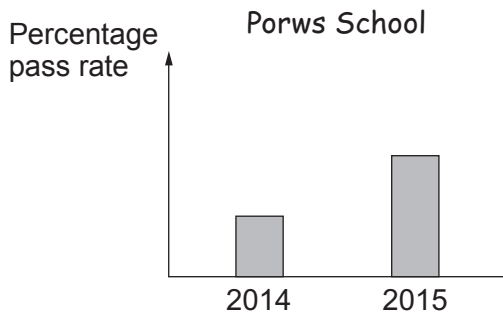
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10. (a) Explain why the following statement and diagrams may give a misleading impression.
Include an example to show how this could happen.

[2]

'Porws School celebrates, as percentage pass rate doubles, but no increase at Gorry School.'



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(b) Explain why the statement beneath the following pie charts may not be true.

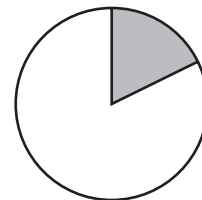
[1]

Westbridge Council



■ female councillors
□ male councillors

Eastbridge Council



'There are more female councillors on Westbridge council than on Eastbridge Council.'

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11. Orienteering is a competition that involves running and using a compass to find directions. It is usually held in wooded and hilly areas of the country.
Liam and Krysta are competing in an orienteering event.

Liam starts from point *A* and Krysta starts from point *B*.
They are only given the finish point *P* of the race once they are at their starting positions.
Liam is told that point *P* is on a bearing of 108° from point *A*.
Krysta is told that point *P* is on a bearing of 230° from point *B*.

(a) By drawing suitable lines, mark the position of point *P* on the diagram below. [3]



(b) When training together, Liam and Krysta have the same running speed.
Neither of them stopped during the race. Both went as fast as they could and there were no injuries.
Both started at the same time.

Give a possible reason why the person who started furthest away from point *P* got there first. [1]

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12. Calculate $\frac{854.7}{(43.2 - 37.6)^3}$, giving your answer correct to 3 significant figures. [2]

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13. A baker requires 825 kg of flour.
She buys the flour in bags that contain 36 kg of flour, correct to the nearest kg.

Is she guaranteed to have enough flour if she buys 23 of these bags?
You must show the calculations needed to decide your answer. [3]

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