

Surname	Centre Number	Candidate Number
Other Names		0



New GCSE

4351/01

MATHEMATICS (UNITISED SCHEME) UNIT 1: MATHEMATICS IN EVERYDAY LIFE FOUNDATION TIER

A.M. MONDAY, 14 November 2011

$1\frac{1}{4}$ hours

ADDITIONAL MATERIALS

A calculator will be required for this paper.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen.

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.

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.

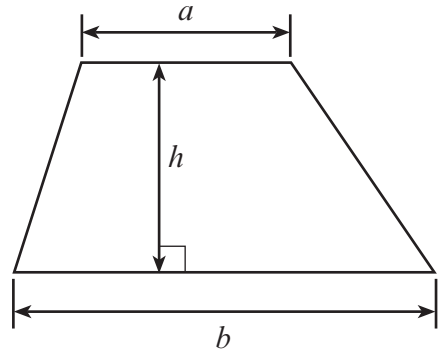
The number of marks is given in brackets at the end of each question or part-question.

You are reminded that assessment will take into account the quality of written communication (including mathematical communication) used in your answer to question 7(a).

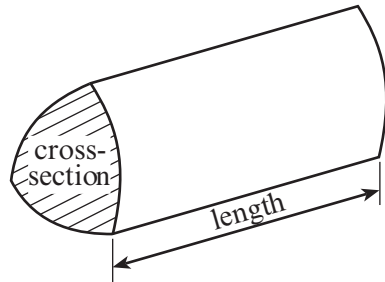
For Examiner's use only		
Question	Maximum Mark	Mark Awarded
1	3	
2	6	
3	3	
4	2	
5	4	
6	5	
7	8	
8	2	
9	5	
10	5	
11	6	
12	3	
13	6	
14	3	
15	4	
TOTAL MARK		

Formula List

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

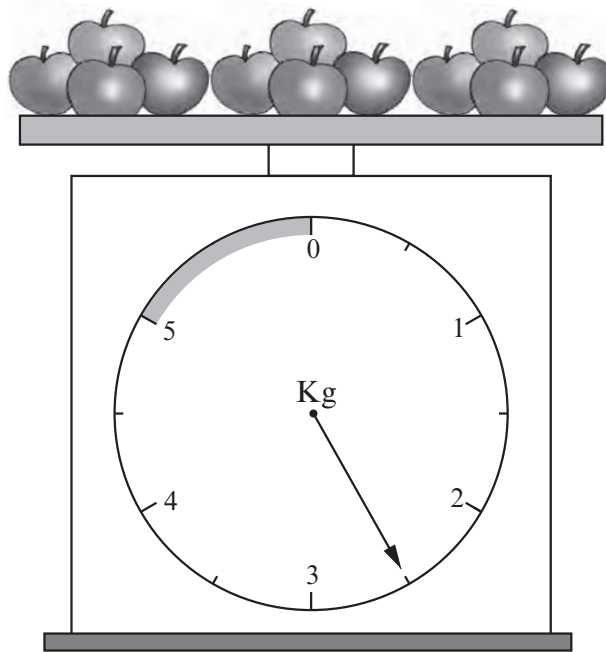


Volume of prism = area of cross-section \times length



- 1. Apples are sold in a fruit market at £1.30 per kg.

What would be the cost of the apples being weighed on the scales shown below?



.....

.....

.....

.....

[3]

4351
010003

2. Forty members of a youth club were asked their opinion on what main colour should be used when decorating their hall.

The colour choices available were blue (B), cream (C) and yellow (Y).

The answers given are recorded on the grid below.

Y	C	B	C	C	B	B	C	Y	C
B	C	B	C	B	C	Y	Y	C	B
C	B	C	C	B	Y	C	C	C	Y
Y	Y	C	Y	C	B	Y	B	B	C

- (a) Complete the frequency table below.

Colour	Tally	Frequency
Blue		
Cream		
Yellow		

[2]

(b) Draw a bar chart to display the results.

[4]



3. On March 10th, the temperatures at midnight in five European cities were measured and the results were as follows.

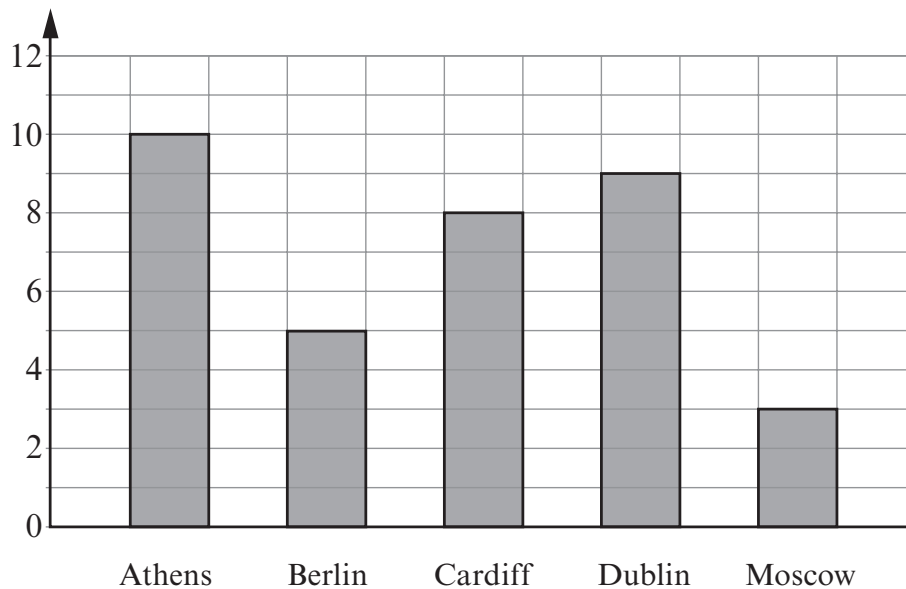
Athens 2°C , Berlin -3°C , Cardiff 0°C , Dublin 3°C , Moscow -7°C .

- (a) List the cities in order of the temperatures recorded at midnight, starting with the lowest.

.....
[1]

On the following day, March 11th, the temperatures at mid-day, for the same five cities, are shown on the diagram below.

Temperature ($^{\circ}\text{C}$)



- (b) What is the difference in temperature, at mid-day on March 11th, between Athens and Moscow?

..... $^{\circ}\text{C}$

[1]

- (c) By how many degrees has the temperature risen in Berlin between midnight on March 10th and mid-day on March 11th?

..... $^{\circ}\text{C}$

[1]

- 4. You are going to a concert that will end at 9:30 p.m..
You plan to leave to catch a bus home after the concert ends.
It will take you twenty minutes to get from your seat in the concert hall to the bus station.

Buses to get you home leave the bus station at the following times.

18:35 19:35 20:35 21:05 21:35 22:05 22:35

Write down the time of the earliest bus that you can catch and how long you will have to wait at the bus station.

.....

.....

.....

Bus time

Waiting time

[2]

- 5. A grocery shop sells peaches for 34p each.

Find the greatest number of peaches you can buy for £5.
How much change should you receive?

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

[4]

4351
010007

6. When servicing a heating boiler and radiators, a plumber knows that the time she will take is given by the formula

$$\text{Time} = 2 \text{ hours} + 30 \text{ minutes per radiator.}$$

She charges her customers a call-out charge of £25, plus £30 per hour.

How much should a customer be charged for servicing a heating boiler and nine radiators?

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

[5]

7. An airline allows a maximum weight limit of 20 kg on each passenger’s luggage.

(a) *You will be assessed on the quality of your written communication in this part of the question.*

A passenger has luggage weighing 18 kg.
He wishes to add an item weighing 1200 g to his luggage.
Find out how much under or over the airline’s weight limit this will make his luggage.

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

[5]

(b) Anton’s luggage weighs 50 lb. (1 kg is approximately 2.2 lb.)
Showing all your calculations, decide whether his luggage is under or over the airline’s weight limit.

.....
.....
.....
.....
.....
.....

[3]

8. Calculate $5 \cdot 6^2 + \sqrt{30}$, giving your answer to three significant figures.

.....
.....
.....

[2]

9. (a) What percentage of pupils in Class A are girls when $\frac{3}{5}$ of the pupils are boys?

.....
.....
.....

[2]

- (b) Class B has 25 pupils of which 44% are girls.
How many girls are there in this class?

.....
.....
.....

[2]

- (c) Can you tell whether or not there are more girls in Class B than in Class A?
You must give a reason for your answer.

.....
.....
.....

[1]

10. (a) A factory manufactures cuboids, each measuring 8.5 cm by 6.6 cm by 3.7 cm.
Calculate the volume of one of these cuboids, giving the units of your answer.

.....
.....
.....

[3]

- (b) The cuboids are packed into rectangular boxes.
Each box is 85 cm long, 66 cm wide and 37 cm high.

What is the maximum number of cuboids that can be packed in each box?

.....
.....
.....

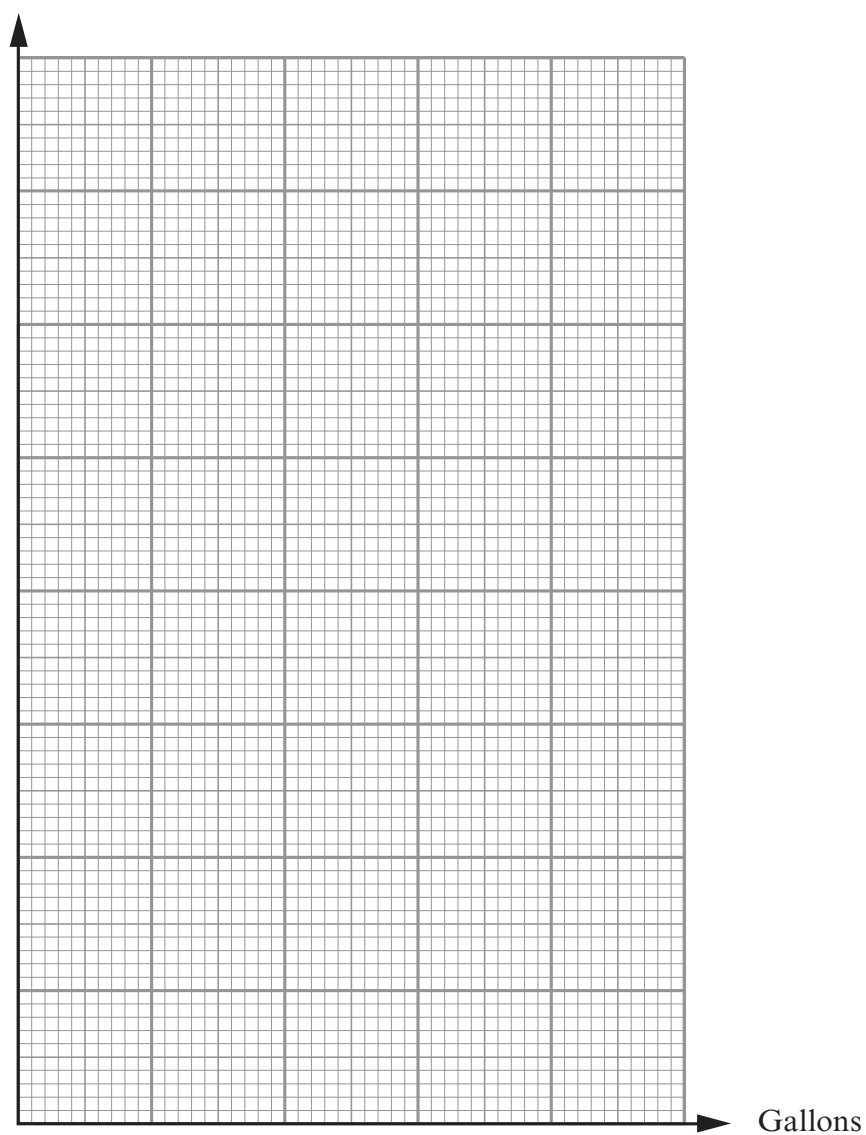
[2]

11. The table below gives three measurements in both gallons and litres.

Gallons	0	9	16
Litres	0	41	73

- (a) On the graph paper below, use the data in the table to draw a conversion graph between gallons and litres.

[4]



- (b) Use your graph to find an estimate for 350 litres in gallons.

.....

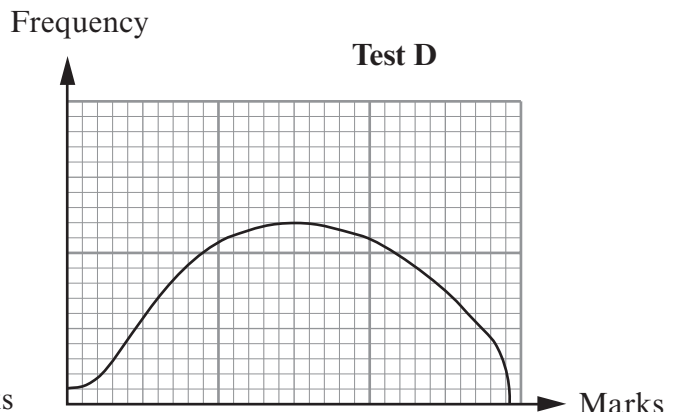
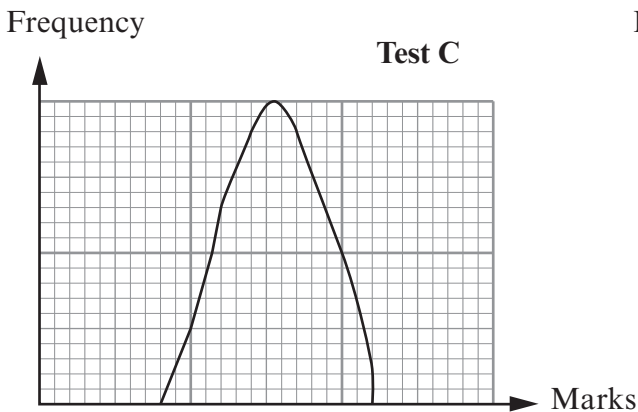
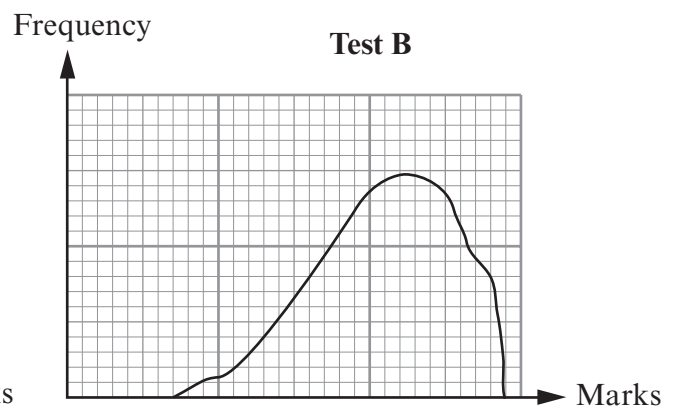
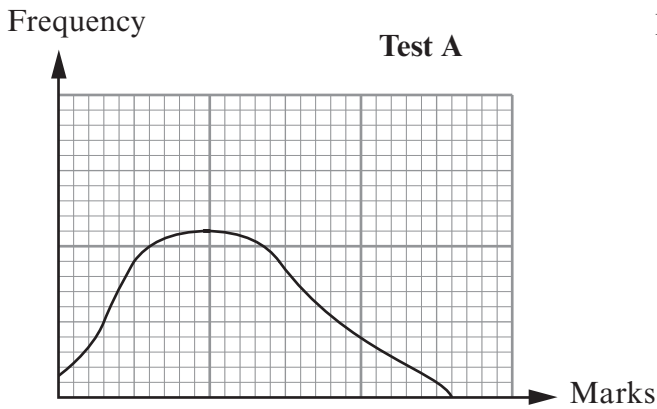
.....

.....

[2]

12. A group of students sat four separate tests, Test A, Test B, Test C and Test D, as part of their course.

Using the data from the marks scored in each of these tests the following sketch graphs were drawn. The same scales are used in each graph.



Complete the following statements.

“Most of the students gained high marks in Test”

“The range of students’ marks was smallest in Test”

“Most of the marks were low in Test”

[3]

- 13.** As part of her training, an athlete runs for 5 minutes and then walks for 1 minute. She repeats this without stopping for a period of one hour.

Her average running speed is 18 km per hour.
Her average walking speed is 6 km per hour.

Calculate how many kilometres she will complete during the hour.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

[6]

- 14.** Idris has been awarded a salary increase from £23 500 per annum to £23 970 per annum.
By what percentage has his salary increased?

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

[3]

15. Zala has bought a sack of potatoes and a bottle of cooking oil.

The sack holds 20 kg of potatoes measured correct to the nearest kilogram.

The bottle contains 750 ml of cooking oil measured correct to the nearest 10 ml.

Complete the table below to show the least and greatest weight of potatoes and the least and greatest amount of cooking oil that Zala could have bought.

	Least Value	Greatest Value
Potatoes kg kg
Cooking oil ml ml

[4]