Rewarding Learning

Centre Number

Candidate Number

General Certificate of Secondary Education
January 2015

Mathematics

Unit T5 Paper 2
(With calculator)
Foundation Tier

MV18

[GMT52]

WEDNESDAY 14 JANUARY 10.45am–11.45am

TIME

1 hour, plus your additional time allowance.

INSTRUCTIONS TO CANDIDATES

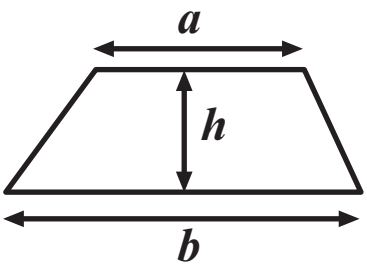
Write your Centre Number and Candidate Number in the spaces provided at the top of this page.
You must answer the questions in the spaces provided. Do not write on blank pages or tracing paper. Complete in blue or black ink only. Answer **all seventeen** questions.
Any working should be clearly shown in the spaces provided since marks may be awarded for partially correct solutions.
You **may** use a calculator for this paper.

INFORMATION FOR CANDIDATES

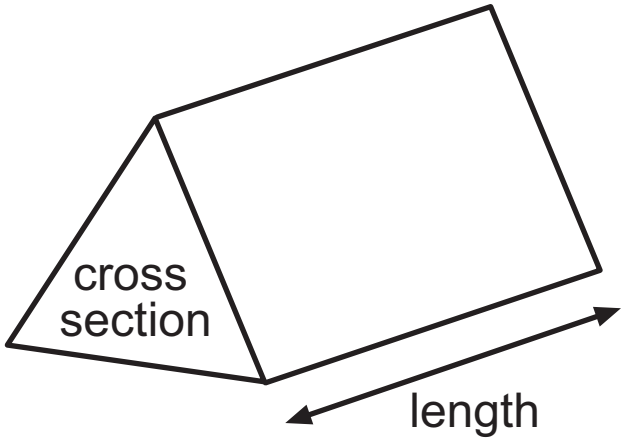
The total mark for this paper is 50.
Figures in brackets printed at the end of each question indicate the marks awarded to each question or part question.
Functional Elements will be assessed in this paper.
Quality of written communication will be assessed in **Questions 7 and 13**.
You should have a calculator, ruler, compasses and a protractor.
The Formula Sheet is on page 3.

Formula Sheet

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



Volume of prism = area of cross section × length



1 **(a)** Add two different capital letters to the right of the letter shown so that all three letters have a horizontal line of symmetry, as indicated by the broken line. [1 mark]

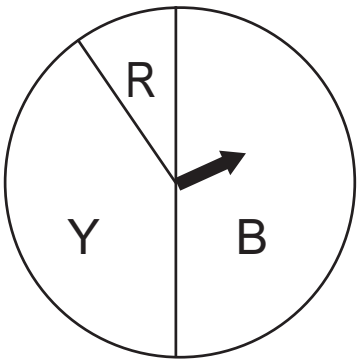
(b) Write three different capital letters, which when written vertically downwards will have a vertical line of symmetry, as indicated by the broken line. [2 marks]

2 Complete the following statements.

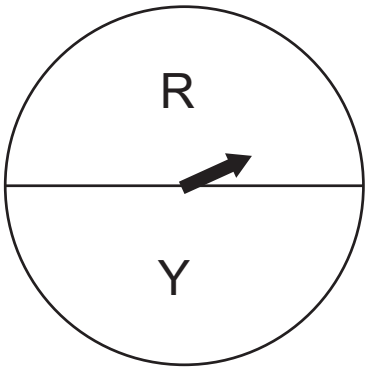
(a) The length of a book can be measured in centimetres (**metric unit**) or _____ (**imperial unit**). [1 mark]

(b) The capacity of a petrol tank can be given in _____ (**metric unit**) or gallons (**imperial unit**). [1 mark]

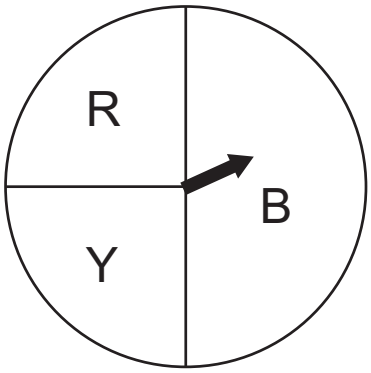
3 There are 5 spinners shown.
R = red Y = yellow B = blue



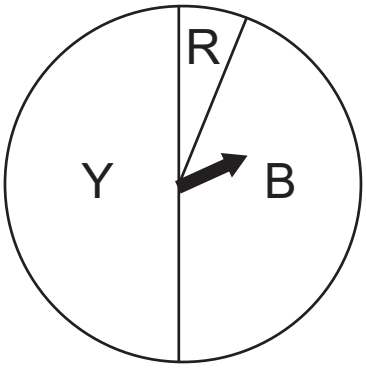
spinner 1



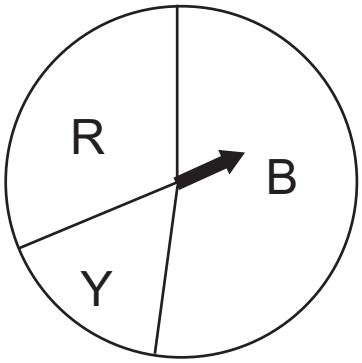
spinner 2



spinner 3



spinner 4



spinner 5

(a) The probability that this spinner lands on blue is zero. Which spinner is this? [1 mark]

Answer spinner _____

(b) Which spinner has the greatest chance of landing on red? [1 mark]

Answer spinner _____

(c) Write down an approximate value for the probability that spinner 5 lands on yellow. [1 mark]

Answer _____

4

The glass pyramid at the entrance to the Louvre museum in Paris has a base area of 1257 m^2 and a height of 21.6 m.

The volume of a pyramid = one third of the base area multiplied by the height.

Calculate the volume of this pyramid. [2 marks]

Answer _____ m^3

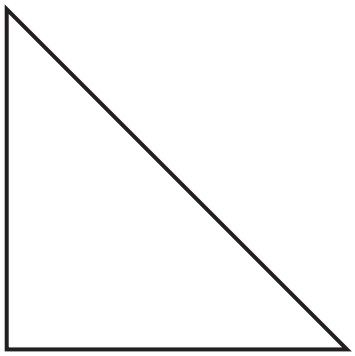
5 Sarah orders the following fruit and vegetables online from Maxi Market. [5 marks]

Complete Sarah's bill.

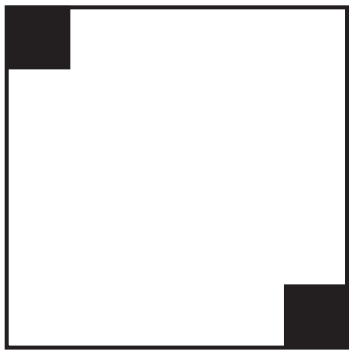
ITEM	PRICE	QUANTITY	COST
Grapes (punnet)	£2.15 or 2 for £4.00	2	
Melon	£1.80 or 2 for £3.20	1	
Red Chillies	65p or 2 for £1.00	1	
Tomatoes (pack)	£1.00	1	
Stir Fry Veg	£1.20 or 2 for £1.80	2	
Potatoes (bag)	£2.25	1	

Total £ _____

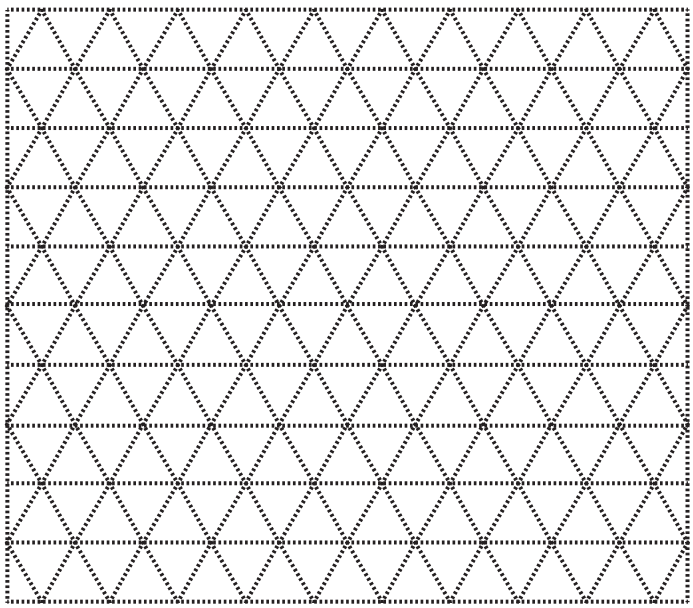
6 **(a)** Draw a line of symmetry on the shape below. [1 mark]



(b) Draw a line of symmetry on the shape below. [1 mark]

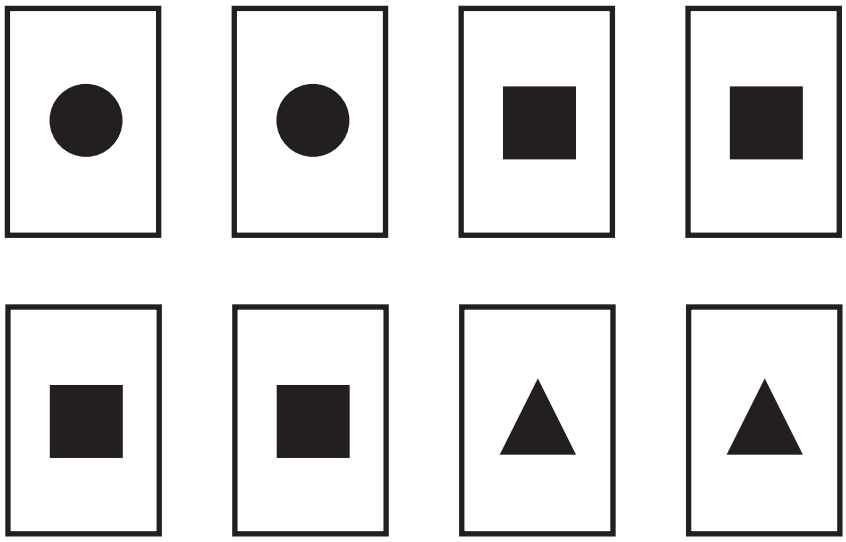


(c) On the grid below, draw a hexagon which has **only** two lines of symmetry. [1 mark]



Quality of written communication will be assessed in this question.

7 The 8 cards shown below are shuffled and placed with the pictures face down on a table.



Megan knows there are two cards with circles and two cards with triangles. She says, “There are an equal number of cards with circles and cards with triangles, so the probability of me taking a card with a triangle is 0.5”.

Is Megan correct? Explain your reasoning clearly. [2 marks]

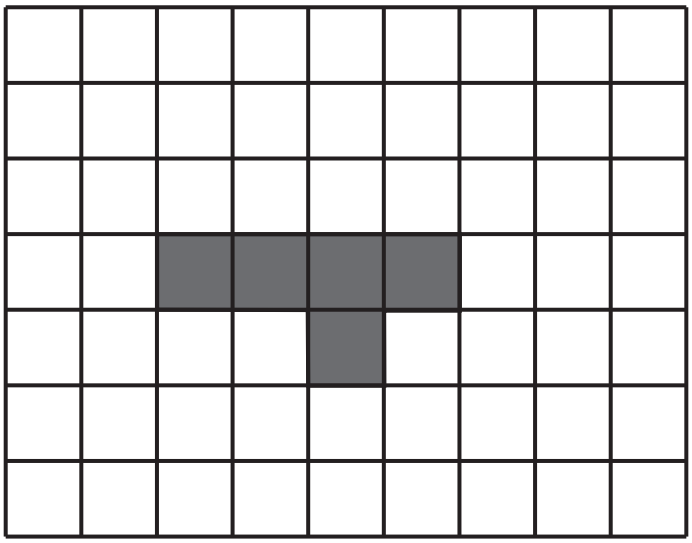
_____ because _____

_____

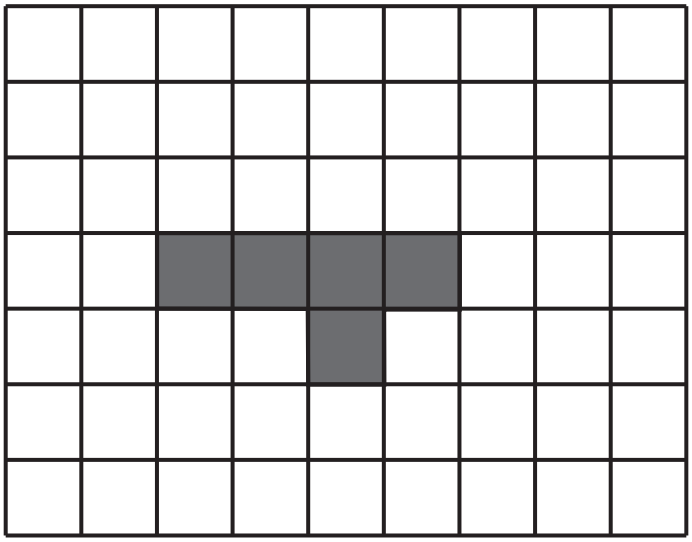
_____

_____

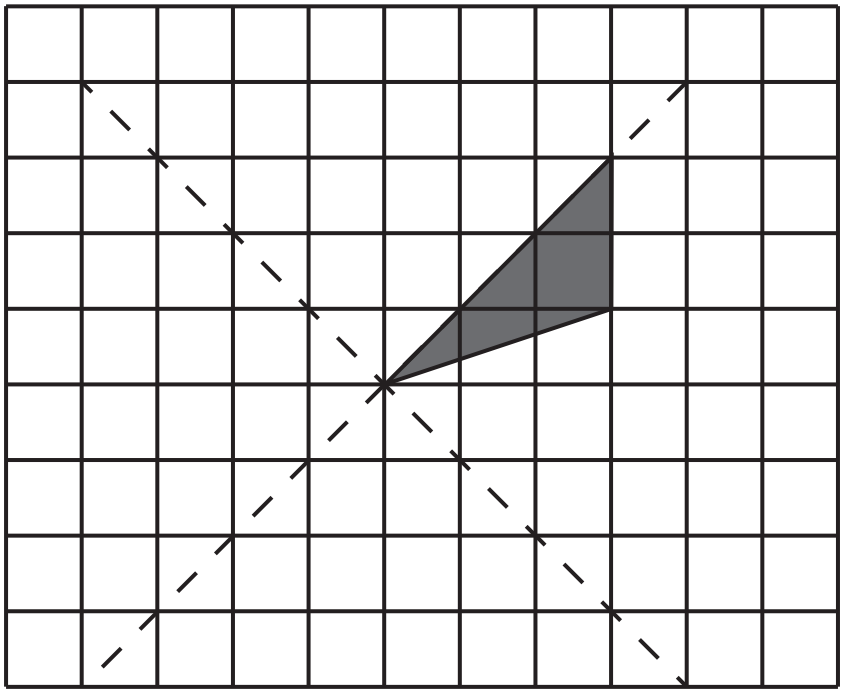
8 **(a)** Shade one more square so that the shape will have one line of symmetry but no rotational symmetry. [1 mark]



(b) Shade one more square so that the shape will have no lines of symmetry but will have rotational symmetry of order 2. [1 mark]



9 Part of a shape is drawn on the grid below.
The dotted lines are the lines of symmetry of the complete shape.



(a) Draw and shade the complete shape. [2 marks]

(b) What is the order of rotational symmetry of the complete shape? [1 mark]

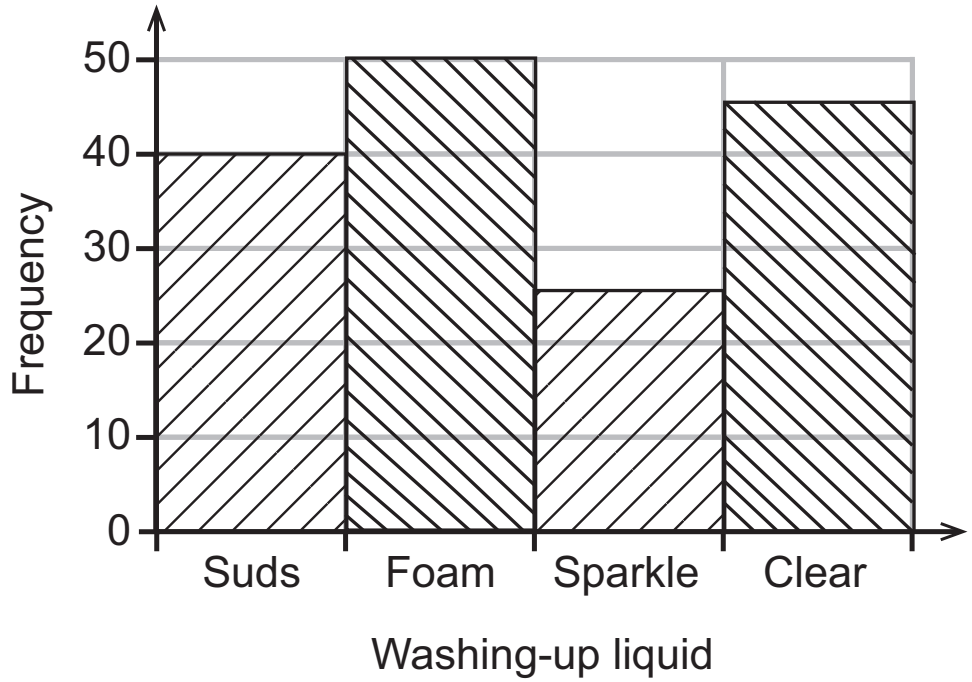
Answer _____

10 Given that $a = 5, \quad b = \frac{1}{4}, \quad c = 3$

evaluate $\mathbf{a} - 8\mathbf{b} - 2\mathbf{c}$ [2 marks]

Answer _____

11 A survey was carried out in a supermarket to find which washing-up liquid people buy.



A customer is chosen at random. What is the probability that they do not buy Foam? [2 marks]

Answer _____

12 Philip rents a holiday home in Florida in May.
It costs him **£**680
Dave rents the same home in August for **$**1400
Given **£**1 **= $**1.52 how much **more** does Dave pay in **£** for the holiday home? [4 marks]

Answer **£** _____

Quality of written communication will be assessed in this question.

13 A plane flies between two cities.
The plane leaves London at 0850, flies to Glasgow and returns to London arriving at 1305
The time spent in Glasgow is 45 minutes.
The second flight is 10 minutes longer than the first flight.
What is the arrival time in Glasgow of the first flight?
Show each stage of your working clearly. [4 marks]

Answer _____

14 Electricity readings from a bill are shown below.

Previous	Present
93449	94969

(a) Calculate the number of units used. [1 mark]

Answer _____

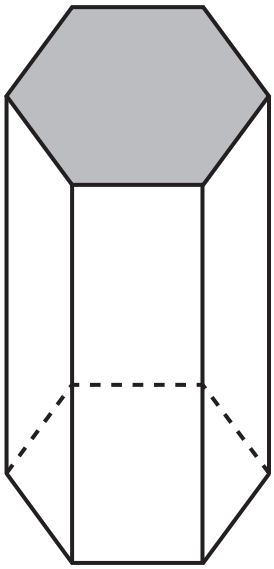
(b) The cost of each unit is **£**0.1455
VAT is charged at 5**%**
Calculate the total electricity bill. [3 marks]

Answer **£** _____

15 The probability that a pupil in Meadowcroft School wears glasses is 0.15
Seventy-two pupils in the school wear glasses.
How many pupils are in Meadowcroft School? [2 marks]

Answer _____

16 A pillar is in the shape of a hexagonal prism as shown below.



The area of the shaded cross section is 960 cm^2
The height of the pillar is 1.2 m.
Calculate the volume of the pillar. [3 marks]

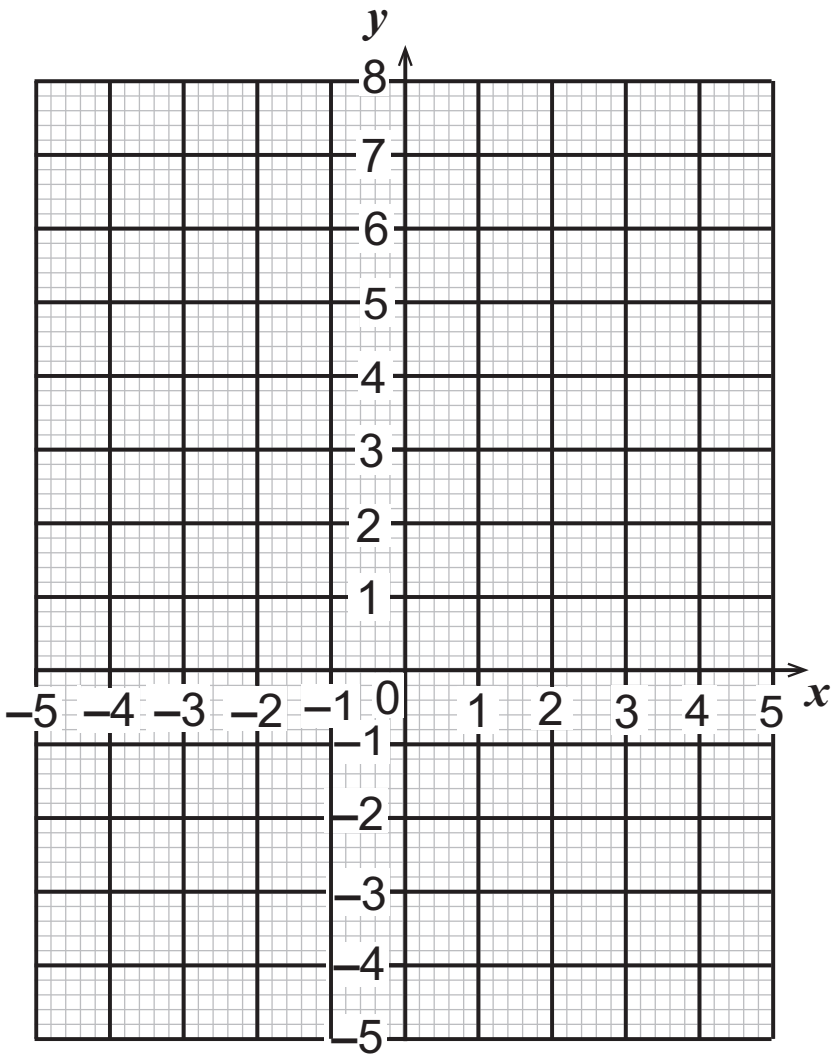
Answer _____

17 Part of the table for the graph of $y = x^2 - 2x - 3$ is shown below.

(a) Fill in the blanks in the table. [2 marks]

x	–2	–1	0	1	2	3	4
y	5	0			–3	0	5

(b) Use the values from the table to draw the graph. [2 marks]



THIS IS THE END OF THE QUESTION PAPER

SOURCES

Source: The Louvre Museum with its Glass Pyramid, by Hteink.min - http://en.wikipedia.org/wiki/File:Louvre_Pyramid.jpg

For Examiner's use only	
Question Number	**Marks**
1	
2	
3	
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Total Marks	

Examiner Number