Rewarding Learning

Centre Number

Candidate Number

General Certificate of Secondary Education
2016

# Mathematics

Unit T5 Paper 1
**(Non-calculator)**
Foundation Tier

*GMT51*

**[GMT51]**
**THURSDAY 2 JUNE, 9.15am–10.15am**

## TIME

1 hour.

## 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 outside the boxed area on each page, on blank pages or tracing paper.**
Complete in blue or black ink only. **Do not write with a gel pen.**
Answer **all fifteen** questions.
All working should be clearly shown in the spaces provided since marks may be awarded for partially correct solutions.
You **must not** use a calculator for this paper.

## INFORMATION FOR CANDIDATES

The total mark for this paper is 50.
Figures in brackets printed down the right-hand side of pages 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 **9(b)**.
You should have a ruler, compasses and a protractor.
The Formula Sheet is on page 2.

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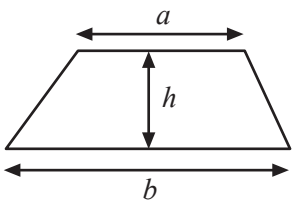
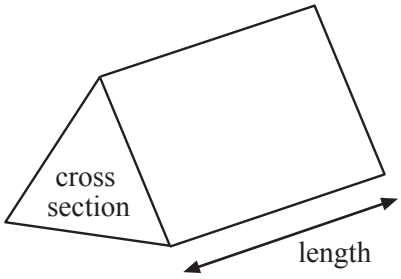
# Formula Sheet

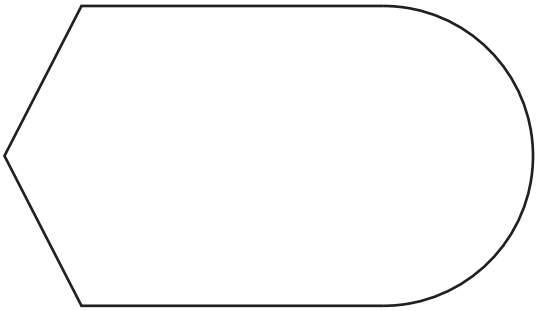
**Area of trapezium** $= \frac{1}{2}(a + b)h$




**Volume of prism** = area of cross section × length

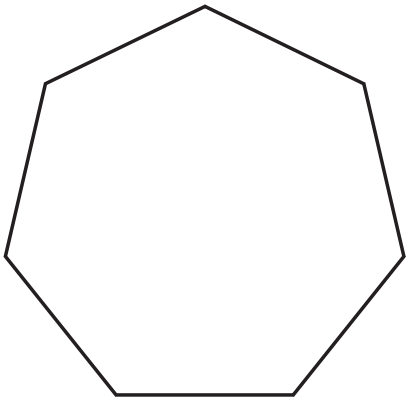


**1** **(a)** Draw a line of symmetry on the shape below.



[1]

**(b)** **(i)**



What is the order of rotational symmetry of the shape above?

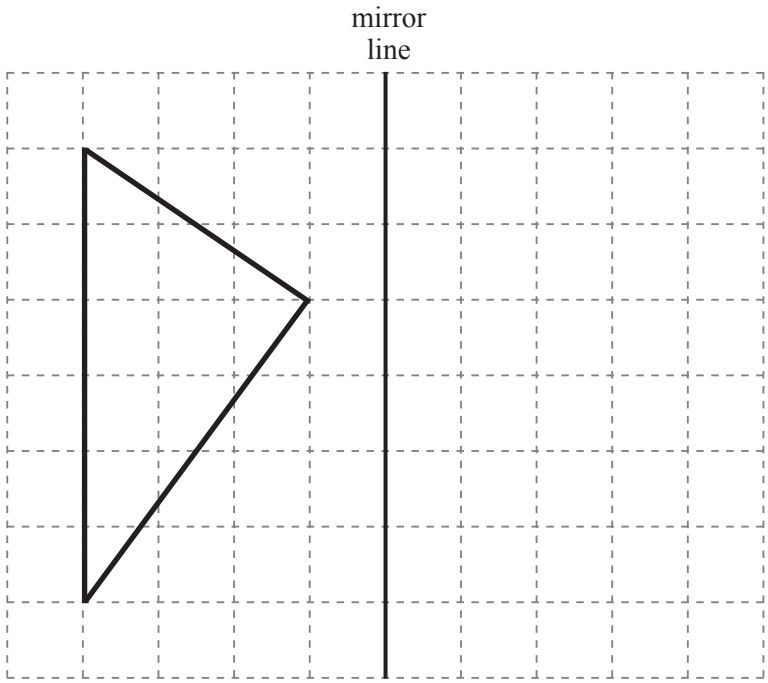
Answer _____ [1]

**(ii)** Draw **all** the lines of symmetry on the shape in part **(i)**. [2]

**[Turn over**

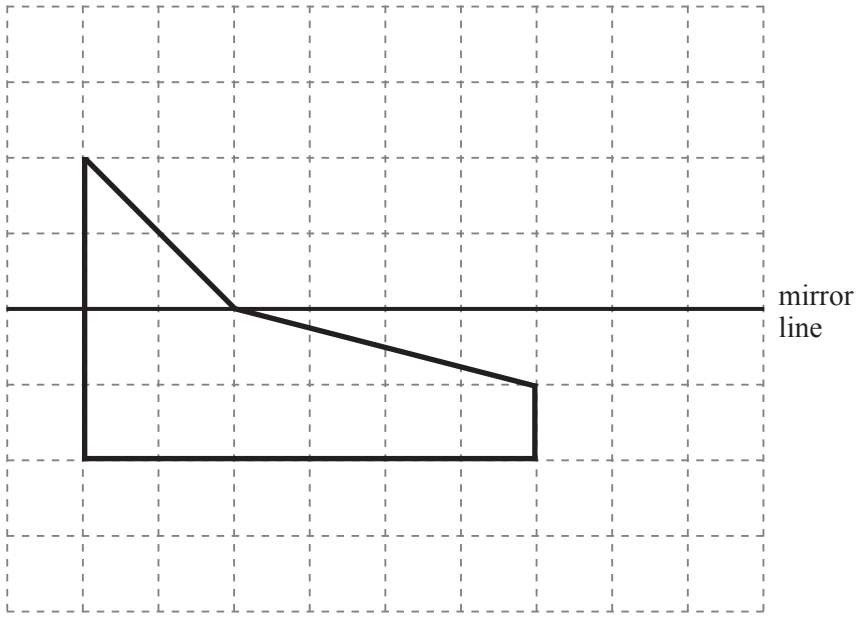
**2** Draw the reflection in the mirror line of each of these shapes.

**(a)**




[2]

**(b)**




[2]

**3** In a quiz there are twelve questions.

Each correct answer gains four points.

Each wrong answer loses two points.

**(a)** Team A gave twelve correct answers.

How many points did they get altogether?

Answer _____ [1]

**(b)** Team B gave eight correct answers and four wrong answers.

How many points did they get altogether?

Answer _____ [2]

**(c)** Team C answered all twelve questions.

Explain how they could get 30 points altogether.

[2]

**[Turn over**

**4** **Estimate** the value of $98 \times 6.9$

You must show your work.

Answer _____ [2]

**5**

| | | | |
|---|---|---|---|
| Impossible | Certain | Likely | Unlikely |
| Very unlikely | Evens | Very likely | |

Choose from the words in the box to describe the probability of each of the following.
Explain your answers.

**(a)** You buy a lottery ticket and win the jackpot.

Answer _____ because _____

_____ [2]

**(b)** Christmas Day will fall on 25th December this year.

Answer _____ because _____

_____ [2]

**6** Write each of the following correct to three decimal places.

**(a)** 63.4034

Answer _____ [1]

**(b)** 0.09876

Answer _____ [1]

**Quality of written communication will be assessed in this question.**

**7** Explain why $\sqrt{73}$ must be a number between 8 and 9

[2]

**8** Work out the value of

**(a)** $17 + 5 \times 3$

Answer _____ [1]

**(b)** $30 \div (5 - 2)$

Answer _____ [1]

**[Turn over**

**Quality of written communication will be assessed in part (b) of this question.**

**9** Jack has been asked by his teacher to investigate the two algebraic expressions

$$pq + r \quad \text{and} \quad p(q + r)$$

**(a)** He substitutes the values $p = 1$, $q = 3$ and $r = 4$ into both expressions and finds that he gets the same answer.

Show that this is true.

[4]

**(b)** Jack says that this means that $pq + r = p(q + r)$.

Explain why Jack is wrong.

[2]

**10** A three-sided spinner has the numbers 2, 4 and 6 written on it. The probability of getting each number is the same.

A fair dice has the numbers 1, 3, 5, 7, 9 and 11 written on it.

In a game the spinner is spun and the dice is rolled. The two scores are added together.

**(a)** Use the two-way table to show all the outcomes for the sum of the two scores.

| + | 1 | 3 | 5 | 7 | 9 | 11 |
|---|---|---|---|---|---|---|
| 2 | | | | | | |
| 4 | | | | | | |
| 6 | | | | | | |

[2]

**(b)** What is the probability that the sum of the two scores is greater than 12?

Answer _____ [2]

**[Turn over**

**11** The surface area of a cylinder can be found by using the formula

$$S = 2A + C$$

Find the value of C when S = 23 and A = 3.5

Answer C = _____ [2]

**12** Use the information $639 \times 8.5 = 5431.5$ to find the value of

**(a)** $6.39 \times 85$

Answer _____ [1]

**(b)** $543.15 \div 850$

Answer _____ [1]

**13** STUR is a trapezium. ST and RU are perpendicular to the line TU.

TV = 3 cm, VU = 4 cm, ST = 9 cm and RU = 13 cm.

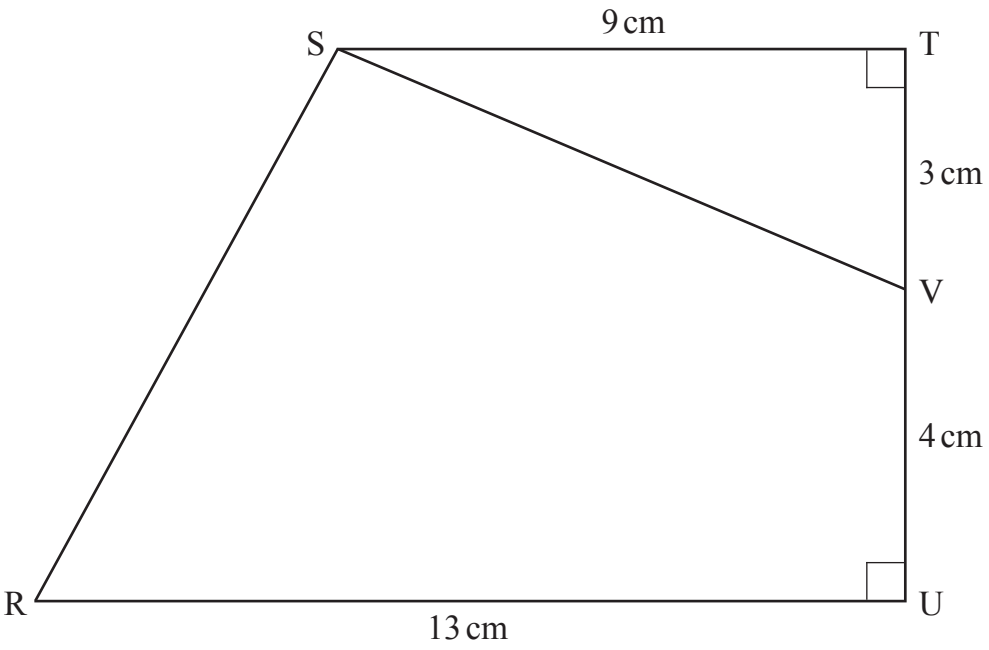



Diagram not drawn accurately

Find the area of the

**(a)** trapezium STUR,

Answer _____ $cm^2$ [2]

**(b)** quadrilateral SVUR.

Answer _____ $cm^2$ [2]

**[Turn over**

**14** **Estimate** the value of

$$\frac{298.7 \times 4.13}{0.526}$$

You must show all your working.

Answer _____ [3]

**15** 90 pupils audition for a part in the school play. 60 are girls.

The probability that a girl gets a part is 0.35 and the probability that a boy gets a part is 0.6

How many pupils are in the school play?

Answer _____ [4]

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| **Question Number** | **Marks** |
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**Examiner Number**