



General Certificate of Secondary Education
January 2017

Centre Number

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Candidate Number

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Mathematics

Unit T5 Paper 2
(With calculator)
Foundation Tier



MV18

[GMT52]

WEDNESDAY 11 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.

Complete in black ink only.

Answer **all fifteen** questions.

All working should be clearly shown in the spaces provided.

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

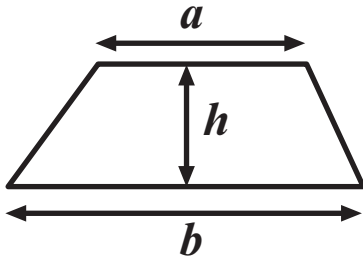
Question **13**.

You should have a calculator, ruler, compasses and a protractor.

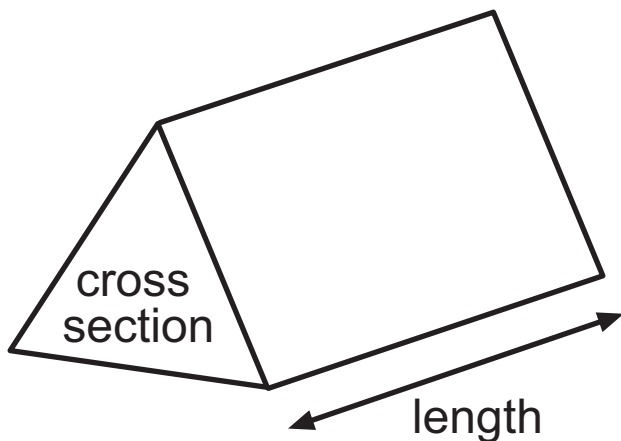
The Formula Sheet is on page 3.

Formula Sheet

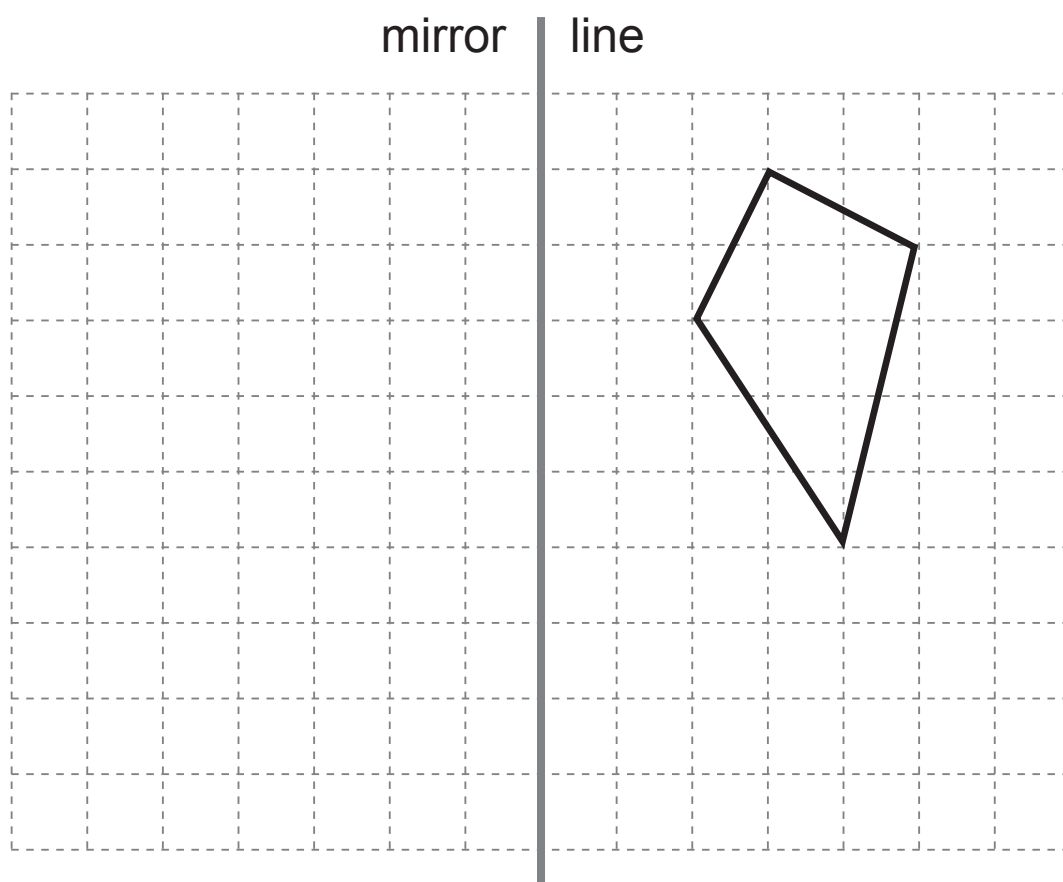
Area of trapezium $= \frac{1}{2} (a + b)h$



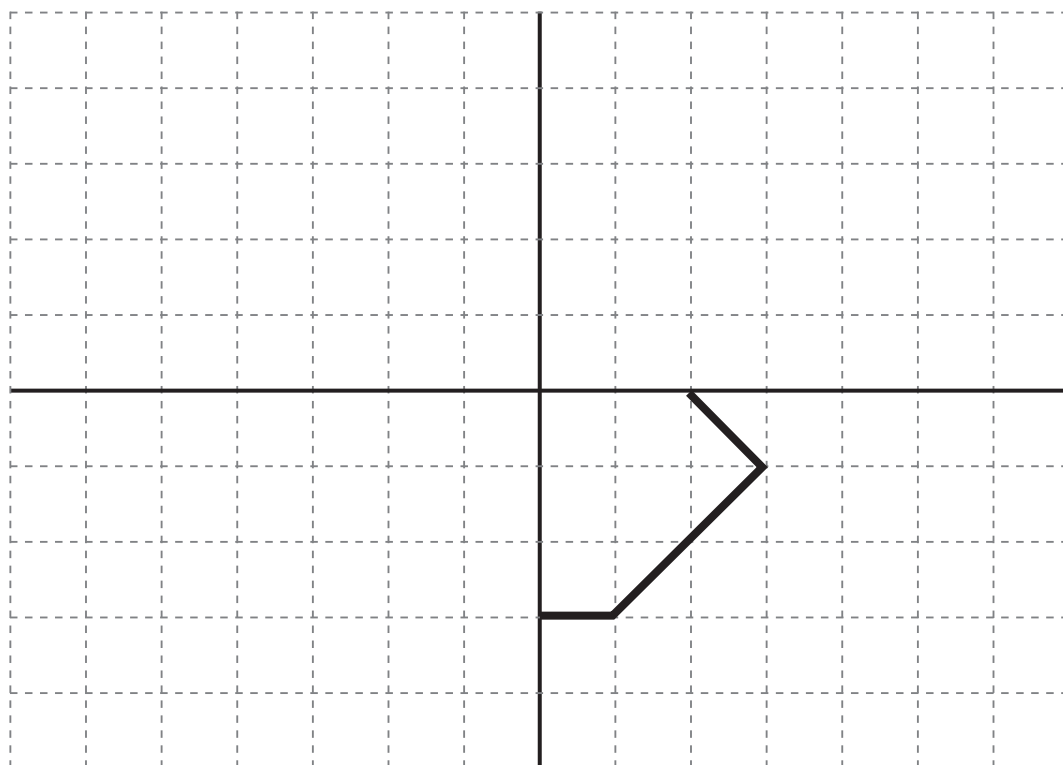
Volume of prism $= \text{area of cross section} \times \text{length}$



- 1 (a) Draw the reflection of the shape in the mirror line.
[2 marks]

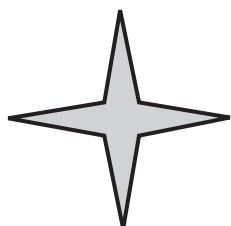


- (b) Complete the diagram so that the axes are lines of symmetry. [3 marks]



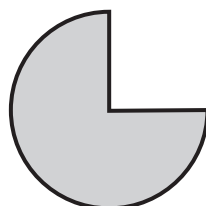
- (c) State whether each diagram has rotational symmetry of order 4 or 2 or none. [1 mark for each]

(i)



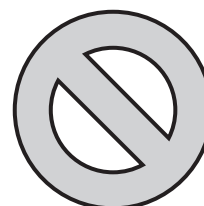
Answer _____

(ii)



Answer _____

(iii)



Answer _____

- 2** Some companies work out the number of days holiday for each worker using the formula:

Number of days holiday = Standard number + 2 extra days for each 5 years worked

- (a)** For Apex Builders, the standard number is 18 days. Sammy has worked for 15 years for Apex.
How many days holiday will Sammy get? [2 marks]

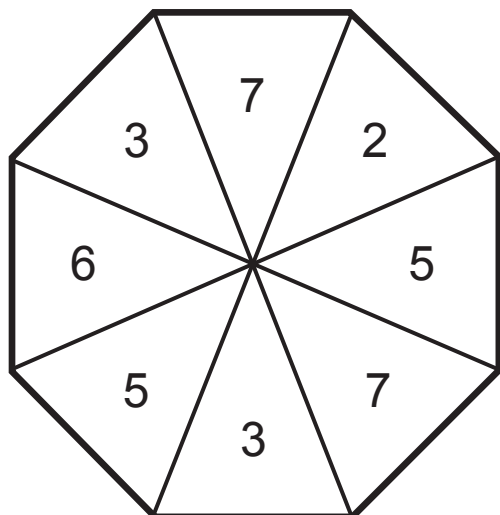
Answer _____

- (b)** Jenny has worked for Trip Fashions for 20 years and gets 28 days holiday.

What is the standard number for Trip Fashions?
[2 marks]

Answer _____

3



The fair spinner has the numbers as shown.

- (a) Which is more likely when this spinner is spun:
a multiple of 3 or a multiple of 7? [2 marks]
Explain your answer.

Answer A multiple of _____ because _____

- (b) Put in order from least likely to most likely, the chances of getting

An odd number An even number A prime number
[2 marks]

Answer _____

- 4** A train leaves Acton station at 2.30 pm and arrives in Bron at 4.15 pm.

A planned upgrade to the railway track will cut travelling time by 20%.

After the upgrade is done, at what time will the 2.30 pm train from Acton arrive in Bron? [3 marks]

Answer _____

- 5** Conal's calculator shows the number

1378.7653

Round this number to

(a) the nearest hundred, [1 mark]

Answer _____

(b) one decimal place. [1 mark]

Answer _____

- 6 A teacher buys 40 calculators at £9.59 each and a number of cheaper calculators at £5.75 each. The total cost is £487.10

How many cheaper calculators does she buy?
[3 marks]

Answer _____

- 7** A box containing 14 pencils has 3 pencils with broken leads.

A pencil is taken at random from the box.

- (a)** What is the probability that it does not have a broken lead? [2 marks]

Answer _____

The pencil taken does not have a broken lead and is not replaced.

- (b)** What is the probability that the next pencil taken has a broken lead? [1 mark]

Answer _____

- 8 The angles in a quadrilateral are 120° , A° , B° and C° .

The angles A, B and C are in ratio 3 : 5 : 4

Calculate the size of the angle B. [3 marks]

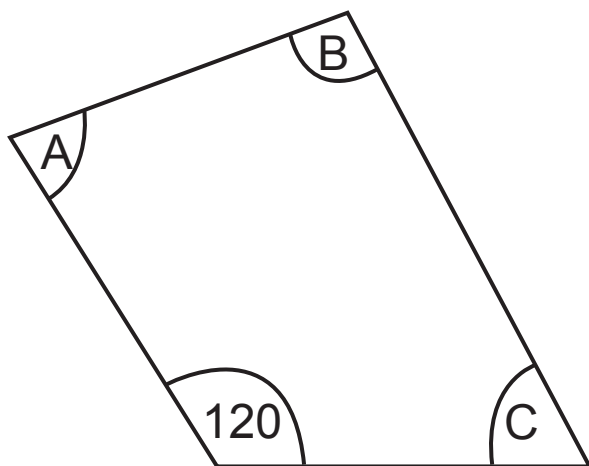


Diagram not drawn
to scale

Answer Angle B = _____ $^\circ$

- 9** Jo says “When you add two different prime numbers, the answer cannot be a square number”.
Give an example to show that Jo is wrong. [2 marks]

Answer _____

- 10 (a)** Insert brackets into this calculation to make it correct.
[1 mark]

$$2 + 7 \times 3 + 8 = 79$$

- (b)** Write 0.00733 correct to 2 significant figures.
[1 mark]

Answer _____

11 A bag contains a number of coloured discs.

Cara takes a disc at random from the bag and puts it back into the bag.

She does this ten times. Here are the outcomes.

Red, Blue, Blue, Yellow, Red, Blue, Yellow, Blue, Yellow, Blue

Write down **impossible**, **possible** or **certain** for each of the following: [1 mark for each]

(a) There are exactly two coloured discs in the bag.

Answer _____

(b) There are more blue than yellow discs in the bag.

Answer _____

(c) Cara picks an 11th disc from the bag. It is black.

Answer _____

12 Heather has an annual salary of £32 000

The first £10 800 is tax free.

She pays income tax at a rate of 20%.

How much of her salary is left after paying her tax?
[3 marks]

Answer £ _____

Quality of written communication will be assessed in this question.

13 Chocolate ice cream

250 g Dark Chocolate

100 g Butter

120 g Caster Sugar

150 ml Water

3 Eggs

500 ml Double Cream

This ice cream recipe will serve 4 people.

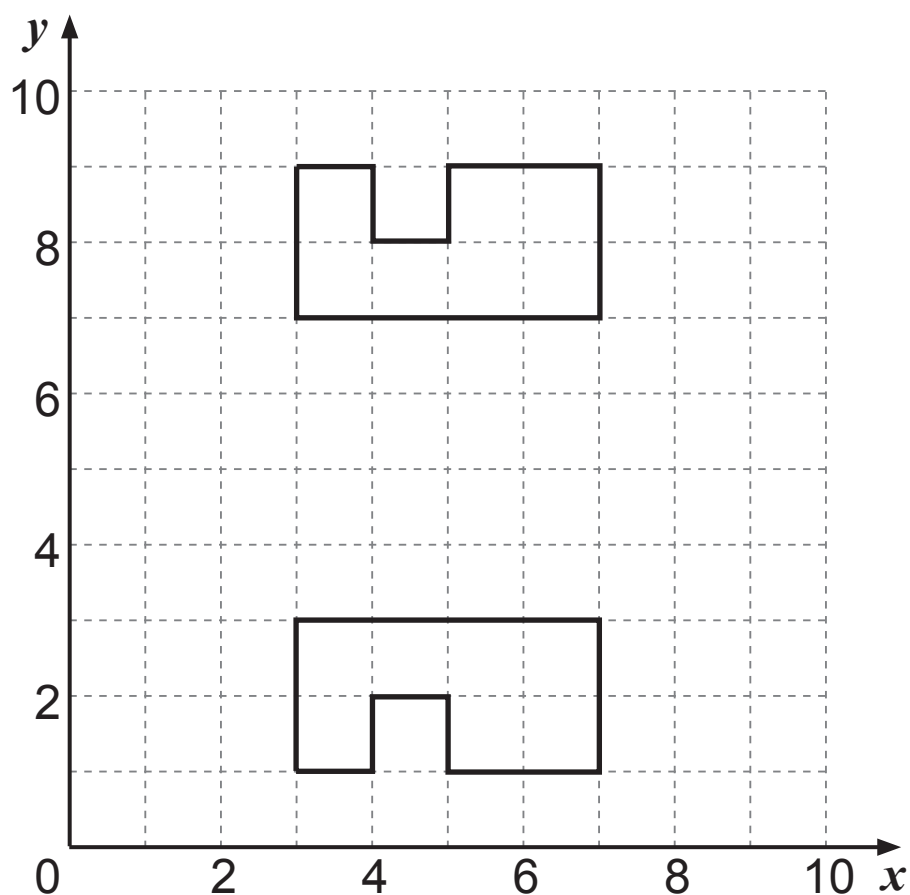
- (a)** How much caster sugar is needed in a recipe for 7 people? [2 marks]

Answer _____ g

- (b)** Liz has 13 eggs and needs to make chocolate ice cream for 17 people.

Does she have enough eggs? Explain your answer.
[2 marks]

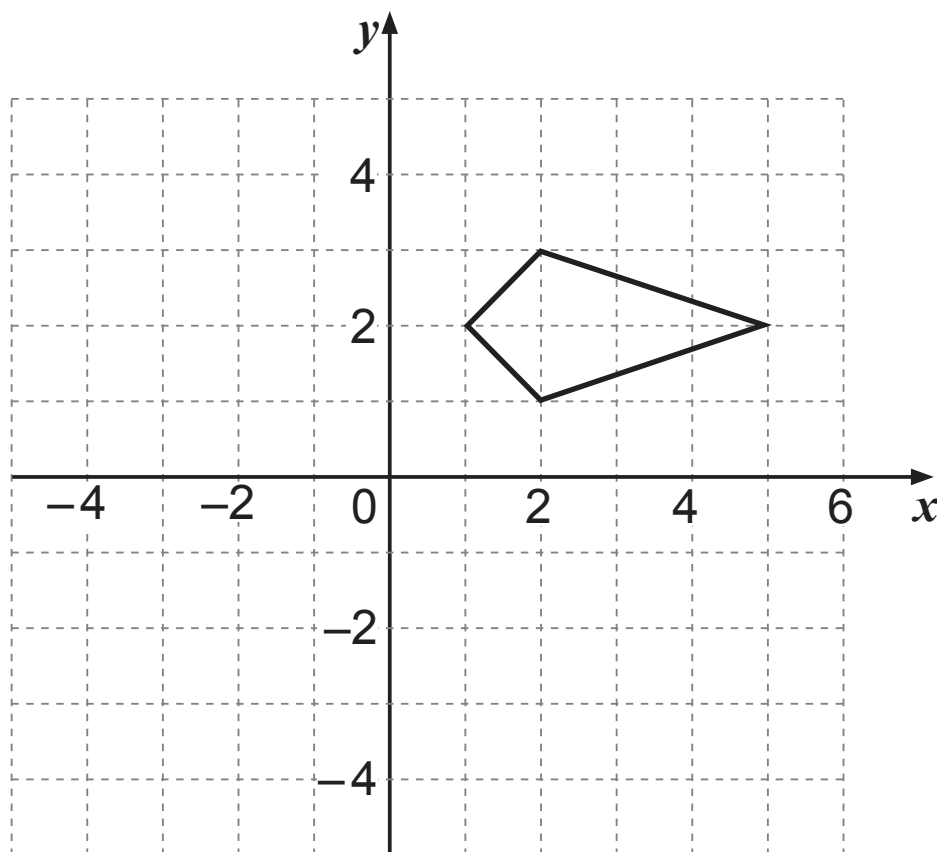
14 (a) The diagram shows two identical shapes.



Describe fully the single transformation which maps one shape onto the other. [2 marks]

Answer _____

(b)



Rotate the shape 90° clockwise about the point (0, 4).
[2 marks]

15 Rearrange $y = 8x + 10$ to make x the subject.
[2 marks]

Answer _____

THIS IS THE END OF THE QUESTION PAPER

DO NOT WRITE ON THIS PAGE

| For Examiner's use only | |
|-------------------------|-------|
| Question Number | Marks |
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |
| 7 | |
| 8 | |
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Examiner Number