Rewarding Learning

Centre Number

Candidate Number

General Certificate of Secondary Education
January 2017

Mathematics

Unit T5 Paper 2
(With calculator)
Foundation Tier

[GMT52]

WEDNESDAY 11 JANUARY, 10.45am–11.45am

ML

TIME

1 hour, plus your additional time allowance.

INSTRUCTIONS TO CANDIDATES

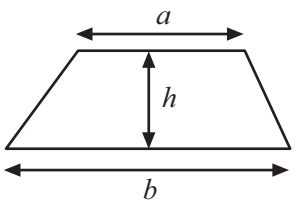
Write your Centre Number and Candidate Number in the spaces provided at the top of this page.
You must answer the questions in the spaces provided.
Do not write outside the boxed area on each page, on blank pages or tracing paper.
Complete in black ink only.
Answer **all fifteen** questions.
All working 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

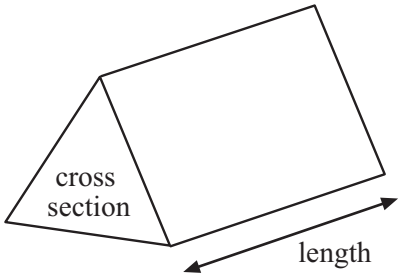
The total mark for this paper is 50.
Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.
Functional Elements will be assessed in this paper.
Quality of written communication will be assessed in Question **13**.
You should have a calculator, ruler, compasses and a protractor.
The Formula Sheet is on page 2.

Formula Sheet

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



Volume of prism = area of cross section × length



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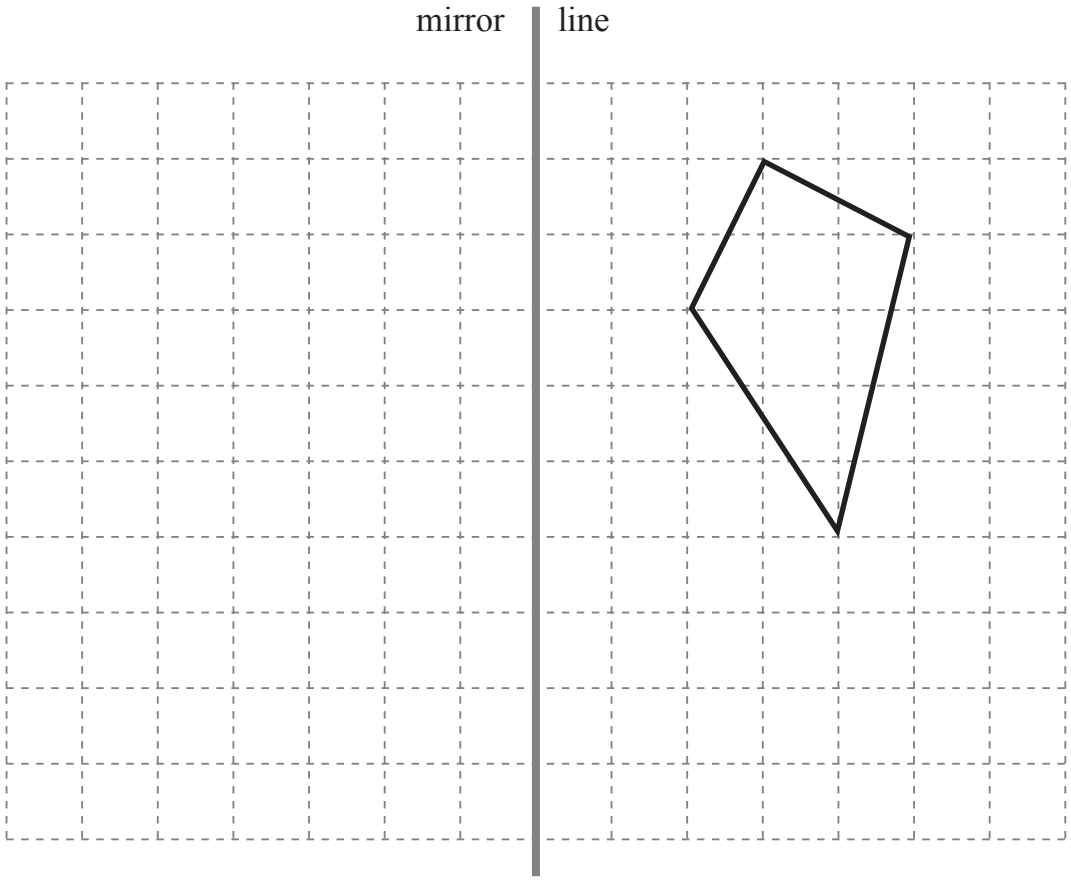
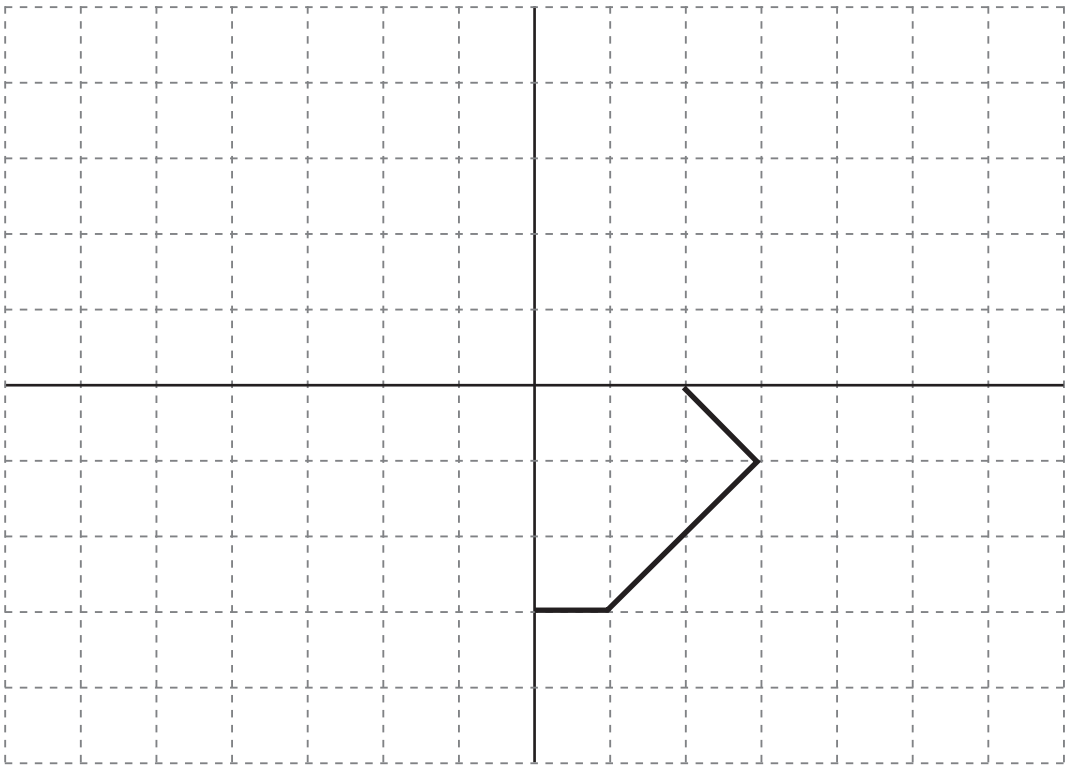
(Questions start overleaf)

1 **(a)** Look at the diagram below. Draw the reflection of the shape in the mirror line.



[2]

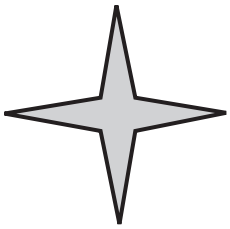
(b) Complete the diagram below so that the axes are lines of symmetry.



[3]

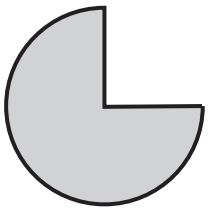
(c) Look at the diagrams below. Write down whether each diagram has rotational symmetry of order **4** or **2** or **none**.

(i)



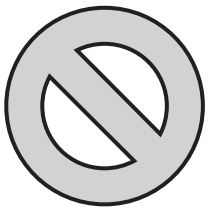
Answer _____ [1]

(ii)



Answer _____ [1]

(iii)



Answer _____ [1]

[Turn over

2 Some businesses work out the number of days holiday for each worker using the formula below:

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?

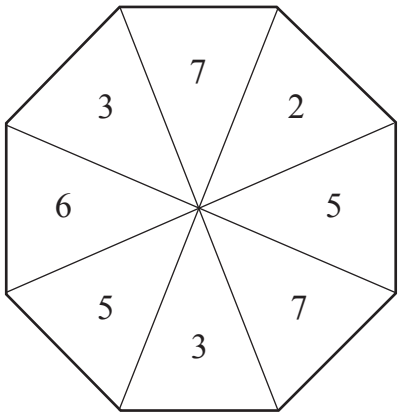
Answer _____ [2]

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

What is the standard number for Trip Fashions?

Answer _____ [2]

3 Look at the fair spinner below.



(a) When this spinner is spun, is it more likely to be:
a multiple of 3 or a multiple of 7?
Explain your answer.

Answer A multiple of _____ because _____

_____ [2]

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

An odd number An even number A prime number

Answer _____ _____ _____ [2]

[Turn over

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

Improvements are made to the track. This reduces travelling time by 20%.

At what time will the 2.30 pm train from Acton arrive in Bron after the improvements?

Answer _____ [3]

5 A calculator shows the number

1378.7653

Round this number to

(a) the nearest hundred,

Answer _____ [1]

Round this number to

(b) one decimal place.

Answer _____ [1]

6 A teacher buys 40 calculators at £9.59 each. She buys some cheaper calculators at £5.75 each. The total cost is £487.10

How many cheaper calculators does she buy?

Answer _____ [3]

[Turn over

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?

Answer _____ [2]

The pencil taken does not have a broken lead and is not put back into the box.

(b) What is the probability that the next pencil taken has a broken lead?

Answer _____ [1]

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.

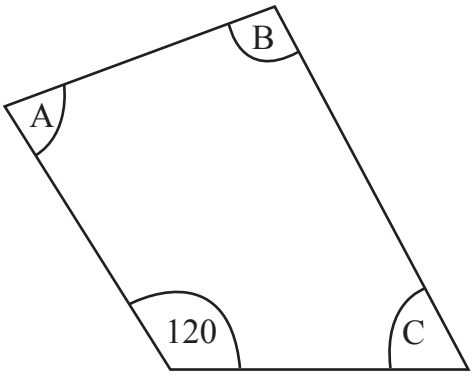


Diagram not drawn to scale

Answer Angle B = _____° [3]

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.

Answer _____ [2]

[Turn over

10 **(a)** Put brackets into this calculation to make it correct.

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

[1]

(b) Write 0.00733 correct to 2 significant figures.

Answer _____ [1]

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:

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

Answer _____ [1]

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

Answer _____ [1]

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

Answer _____ [1]

[Turn over

12 A woman is paid £32 000 a year for her job.

The first £10 800 of her pay is tax free.

She pays income tax at a rate of 20%.

How much money has she left after paying her tax?

Answer £ _____ [3]

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?

Answer _____ g [2]

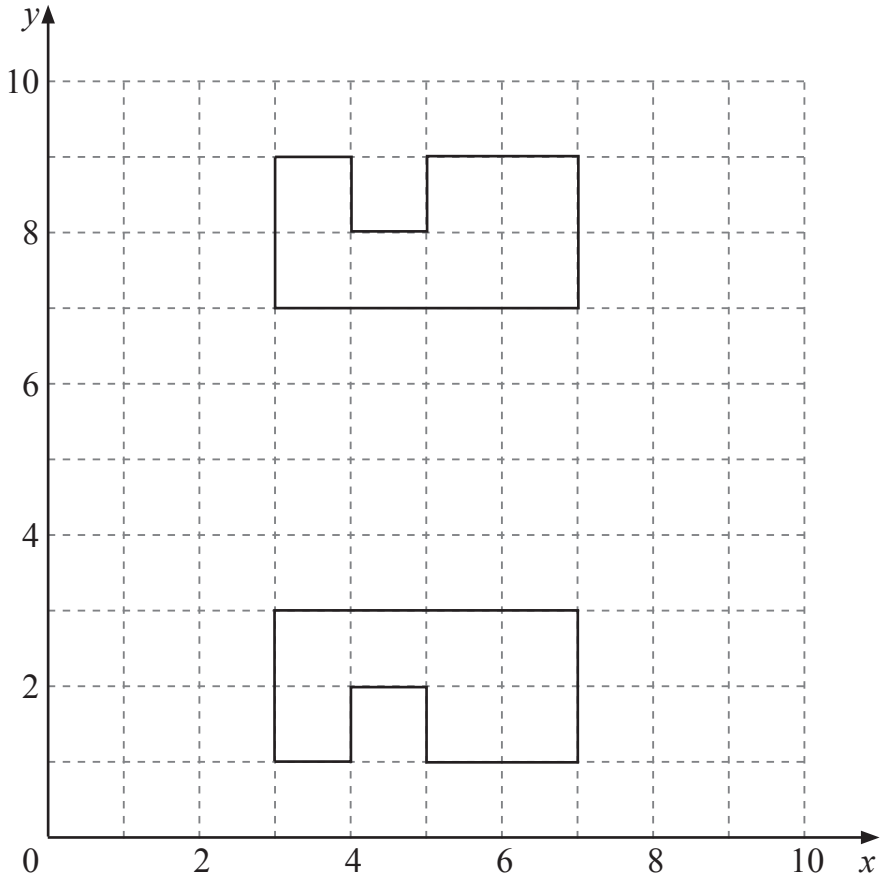
(b) Ann has 13 eggs and needs to make chocolate ice cream for 17 people.

Does she have enough eggs? Explain your answer.

[2]

[Turn over

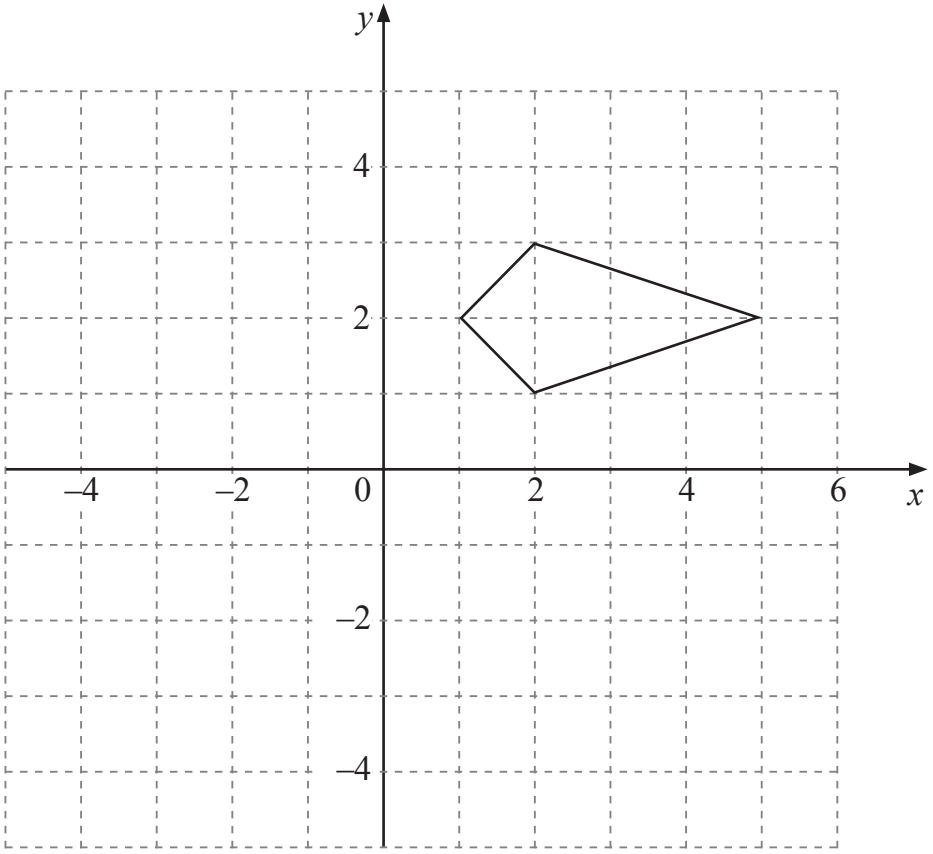
14 (a) The diagram shows two identical shapes.



Describe fully the single transformation which maps one shape onto the other.

Answer _____ [2]

(b)



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

[Turn over

15 Rearrange $y = 8x + 10$ to make x the subject.

Answer _____ [2]

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