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Wednesday 5 November 2014 – Morning

GCSE MATHEMATICS A

A502/01 Unit B (Foundation Tier)

Candidates answer on the Question Paper.

OCR supplied materials:
None

Other materials required:
- Geometrical instruments
- Tracing paper (optional)

Duration: 1 hour

A502/01

3055092745

Candidate forename		Candidate surname	

Centre number						Candidate number				

INSTRUCTIONS TO CANDIDATES

- Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. HB pencil may be used for graphs and diagrams only.
- Answer **all** the questions.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Your answers should be supported with appropriate working. Marks may be given for a correct method even if the answer is incorrect.
- Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).
- Do **not** write in the bar codes.

INFORMATION FOR CANDIDATES

- The number of marks is given in brackets **[ ]** at the end of each question or part question.
- Your quality of written communication is assessed in questions marked with an asterisk (*****).
- The total number of marks for this paper is **60**.
- This document consists of **16** pages. Any blank pages are indicated.

WARNING

No calculator can be used for this paper

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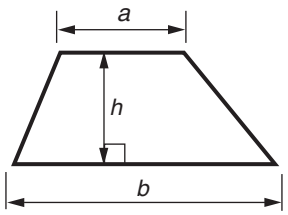
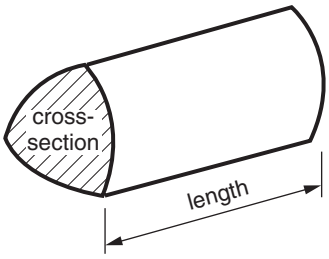
Formulae Sheet: Foundation Tier

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



Volume of prism = (area of cross-section) × length



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Answer **all** the questions.

1 **(a)** Write these numbers in order, starting with the smallest.

2014 81 952 101 899

.... **[2]**
smallest

(b) **(i)** Complete this sentence.

Half of 16 is the same as ..... % of 16. **[1]**

(ii) Complete this sentence using a fraction.

75% of 12 is the same as ..... of 12. **[1]**

(c) Find 20% of £30.

(c) £ ..... **[2]**

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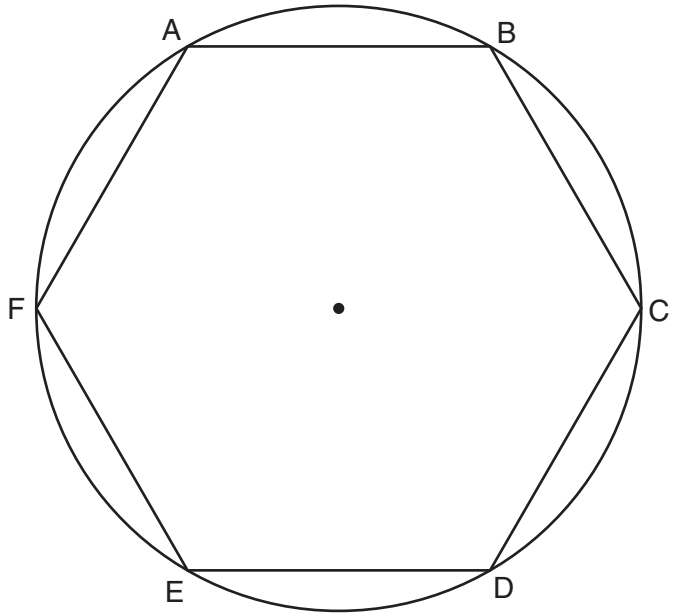
2 **(a)** The regular shape ABCDEF is inscribed in a circle.



(i) Write down the mathematical name of the regular shape ABCDEF.

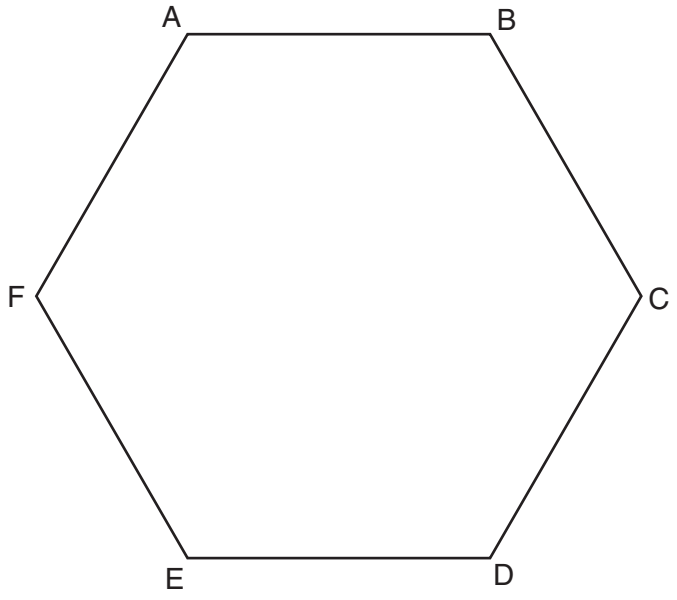
(a)(i) ..... **[1]**

(ii) On the diagram above, draw a diameter of the circle. **[1]**

(iii) Complete this sentence.

Line AB is a ..... of the circle. **[1]**

(iv) On the diagram below, draw one line of symmetry of ABCDEF.



[1]

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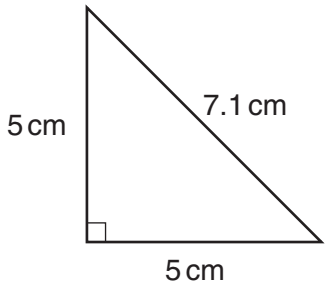
(b) Sally has nine **identical** tiles.
Each tile is an isosceles, right-angled triangle, as shown below.



Not to scale

Sketch **two** squares, of different sizes, that Sally could make by putting some of these tiles together.
Next to each sketch, write down the length of one side of the square. **[4]**

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3 Gill goes on holiday.

The Holiday Money Shop
Change £1 for €1.20

(a) Gill changes £100 into euros at *The Holiday Money Shop*.

How many euros should she receive?

(a) € ..... **[2]**

(b) When she arrives at the airport, Gill buys this handbag.

How many euros does she have left from the money she changed?

(b) € ..... **[2]**

(c) When Gill got home she had €36 in her purse.
She changed these euros to pounds (£) at *The Holiday Money Shop*, using the same rate as before.

How much did Gill get for €36?

(c) £ ..... **[2]**

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4 **(a)** Round £12.48 correct to the nearest pound (£).

(a) £ ..... **[1]**

(b) Callum sells these items.

Item	Price	Price correct to the nearest pound (£)
Fish tank	£12.48	
Water pump	£4.95	
Gravel	86p	
Plastic castle	£6.87	
Ceramic skull	£3.24	
	Total	£

Write each price correct to the nearest pound (£).
Use these rounded values to estimate the total Callum receives. **[3]**

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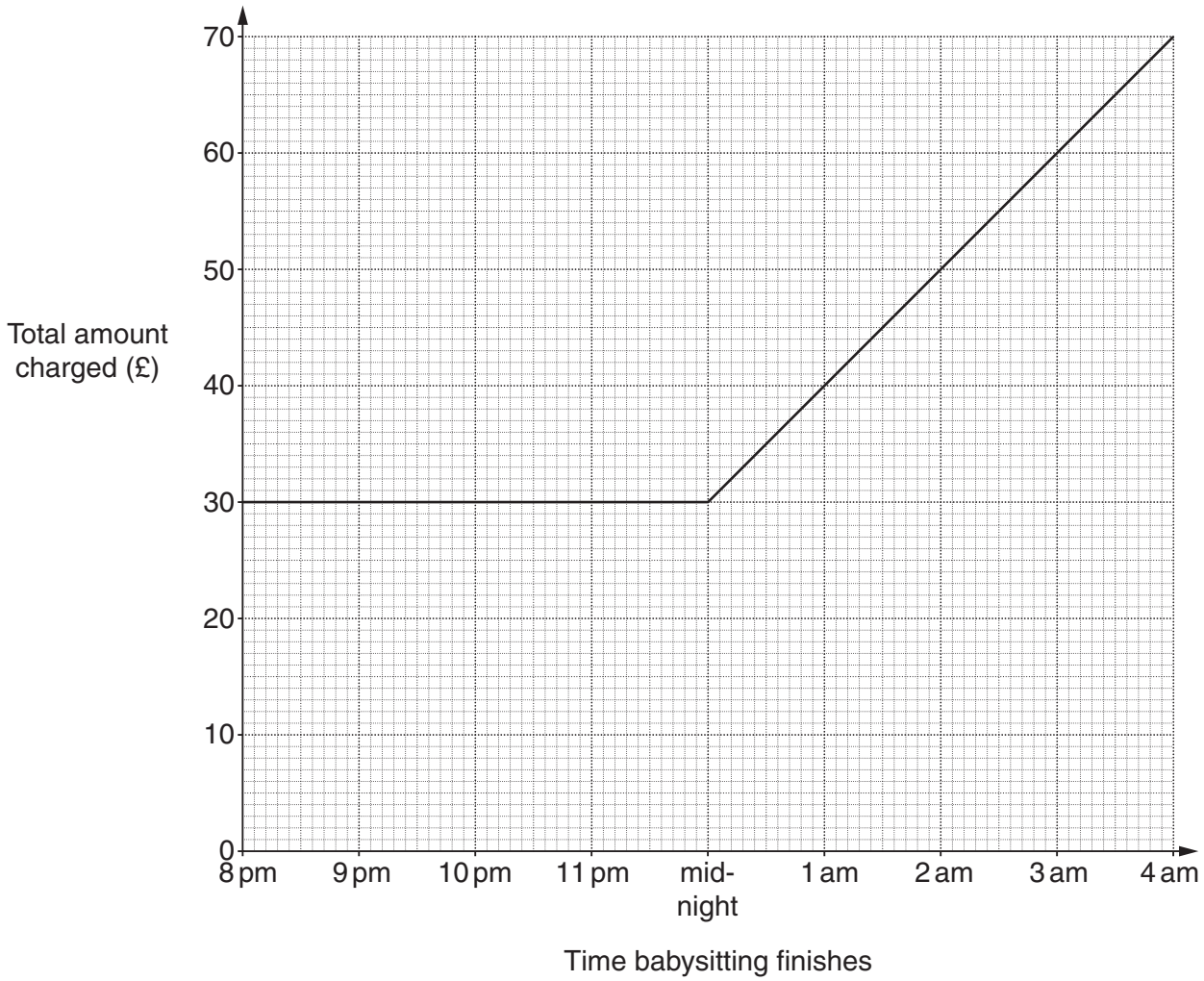
5 Katy earns money babysitting.
She charges a fixed amount of £30 to babysit for any period of time from 8 pm until midnight.
After midnight she charges any extra time at an hourly rate.
This graph shows the **total** amount she charges.



(a) One evening, Katy finishes babysitting at 2.30 am.

How much does she charge?

(a) £ ..... **[1]**

(b) How much does Katy earn for each extra hour babysitting after midnight?

(b) £ ..... **[1]**

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(c) Alba charges £8 for each hour she babysits.

(i) She babysits from 8 pm to 1 am.

How much will Alba charge, in total, for this?

(c)(i) £ ..... **[2]**

(ii) Alba starts babysitting at 8 pm.
Complete this table.

Time babysitting finishes	9 pm	10 pm	11 pm	mid-night	1 am	2 am	3 am	4 am
Total amount Alba charges (£)		16						

[1]

(iii) Draw a line on the grid to show the total amounts Alba charges. **[2]**

(iv)* Compare the cost of employing Katy or Alba to babysit, starting at 8 pm.
Use information from the graph to support your answer. **[4]**

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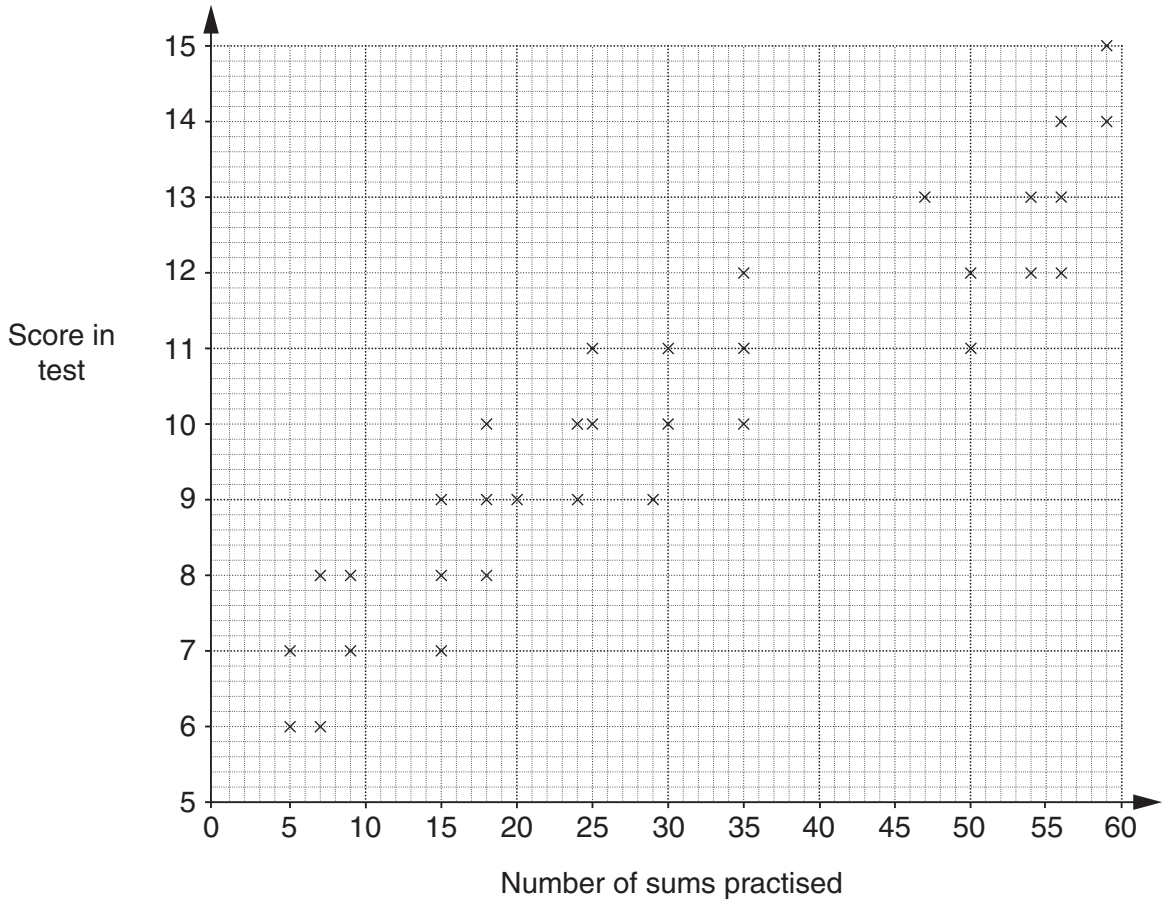
6 Pia uses a computer to help her revise.
Each time, Pia practises a number of sums and then takes a test, scored out of 15.
For each test, Pia records the number of sums practised and the score on the test.
She draws this scatter graph.



One day, Pia practised 42 sums but did not have time to take the test.
She decides to use a line of best fit to estimate her likely score in the test.

(a) On the grid, draw a line of best fit. **[1]**

(b) Use your line of best fit to estimate a score for Pia.

(b) ..... **[1]**

(c) What type of correlation is shown?

(c) ..... **[1]**

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7 **(a)** Put a tick in the box beside the operation used when y is calculated using a value for d.

$$y = \frac{d}{8}$$

(a) Addition ☐

Subtraction ☐

Division ☐

Multiplication ☐ **[1]**

(b) Write this sentence as an algebraic formula.

When 5 is taken from g the answer is b.

(b) ..... **[2]**

(c) Solve.

$$x - 1 > 5$$

(c) ..... **[1]**

(d) Put a tick beside the **expression**.

(d) $A = \pi r^2$ ☐

$a + b$ ☐

$y > 10$ ☐

$2x + 1 = 5$ ☐ **[1]**

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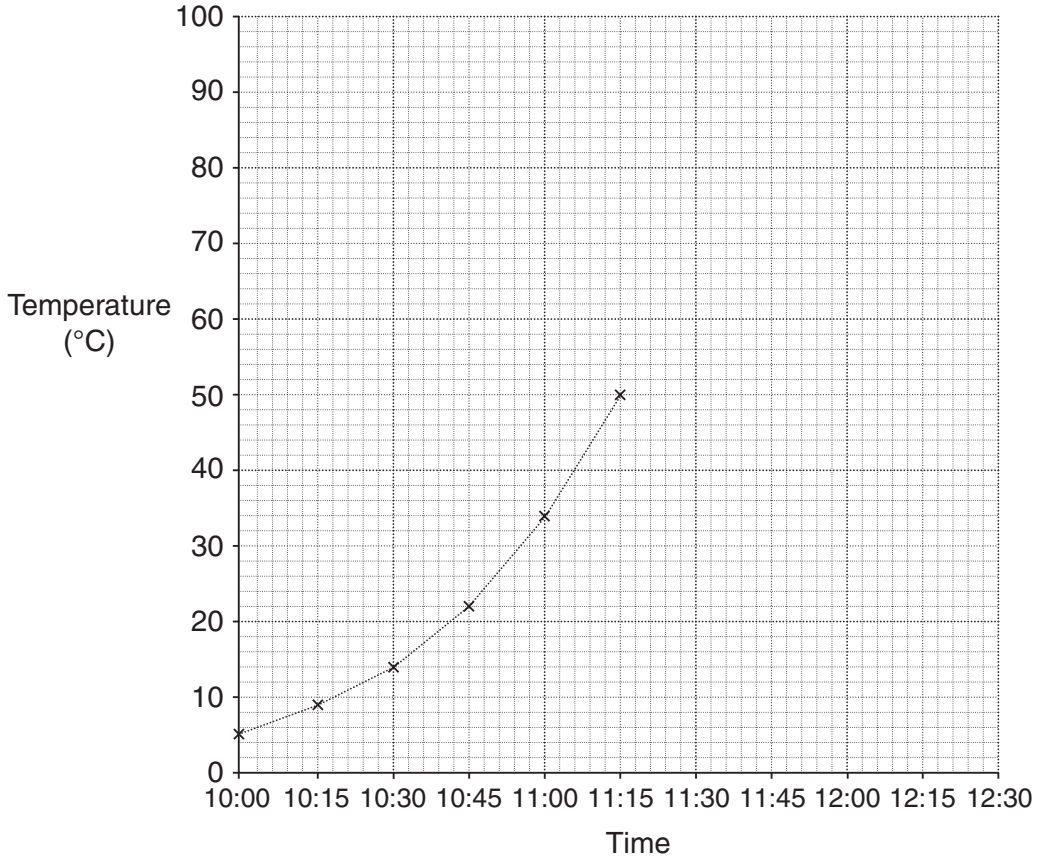
8 Maxine is cooking a chicken.
She uses a meat thermometer to check when her chicken is cooked.
She puts the chicken in the oven at 10:00.
This table shows the temperature in the chicken every 15 minutes.

Time	10:00	10:15	10:30	10:45	11:00	11:15	11:30	11:45	12:00	12:15	12:30
Temperature (°C)	5	9	14	22	34	50	65	77	87	92	80

(a) Complete this time series graph to show Maxine's data.
The first six points have been plotted for you.



[2]

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(b) Maxine turns the oven off when the temperature in the chicken first reaches 83°C.
Use your graph to estimate the following.

(i) The time that Maxine turned the oven off.

(b)(i) ..... **[1]**

(ii) The number of **minutes** that the chicken took to first reach 83°C.

(ii) ..... minutes **[1]**

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9 **(a)** Change $\frac{2}{5}$ into a decimal.

(a) ..... **[2]**

(b) Change 0.79 into a fraction.

(b) ..... **[1]**

(c) One of the fractions below is written as a recurring decimal.

(i) Put a tick beside the recurring decimal.

Fraction		Decimal	✓
$\frac{1}{4}$	=	0.25	
$\frac{4}{3}$	=	$1.\dot{3}$	
$1\frac{3}{4}$	=	1.75	

[1]

(ii) Explain why you chose this decimal.

.....

..... **[1]**

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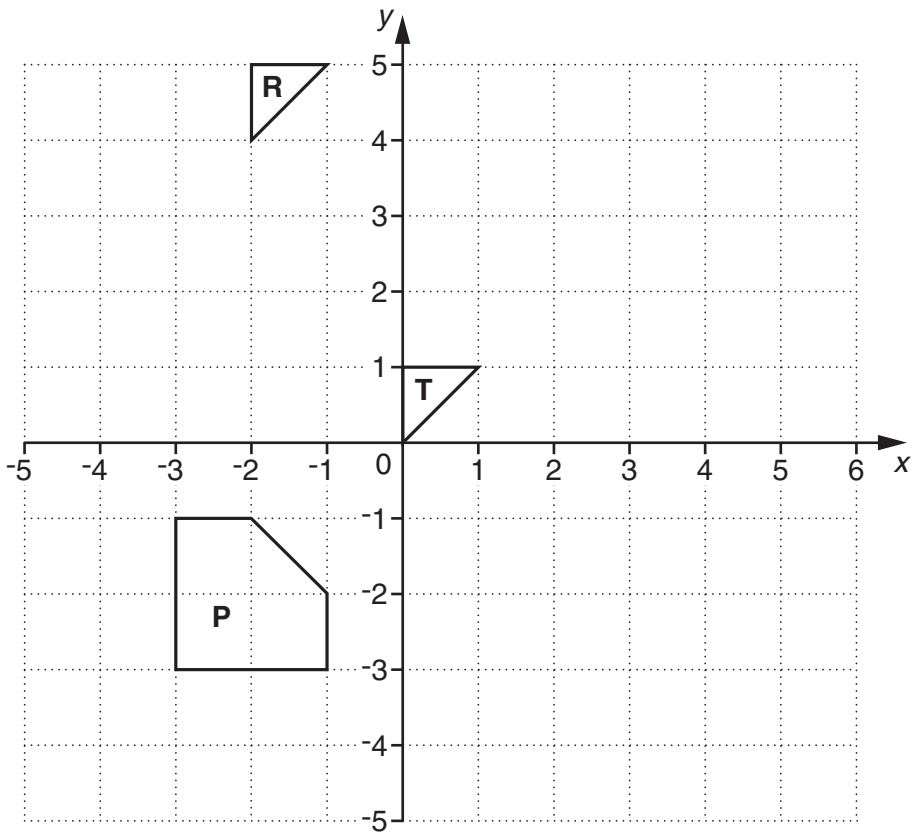
10 Shapes **P**, **R** and **T** are drawn on this grid.



(a) Describe fully the **single** transformation that maps triangle **T** onto triangle **R**.

.....

..... **[3]**

(b) Reflect shape **P** in the line $x = 1$.
Label your image **B**. **[2]**

(c) Enlarge triangle **T** with scale factor 3, centre (0, 0).
Label your image **C**. **[3]**

END OF QUESTION PAPER

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