



Rewarding Learning

General Certificate of Secondary Education
2013

Centre Number

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Candidate Number

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Mathematics

Unit T2

(With calculator)

Foundation Tier



[GMT21]

GMT21

TUESDAY 11 JUNE, 9.15 am–10.45 am

TIME

1 hour 30 minutes.

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 box, around each page, on blank pages or tracing paper.

Complete in blue or black ink only. **Do not write with a gel pen.**

Answer **all twenty-seven** 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 100.

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 9 and 26.**

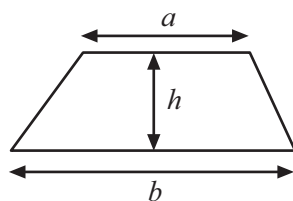
You should have a calculator, ruler, compasses and a protractor.

The Formula Sheet is on page 2.

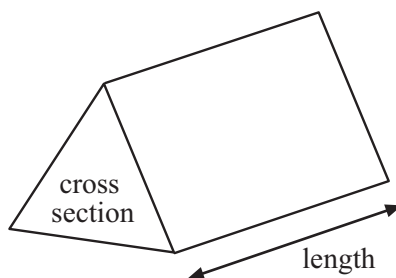


Formula Sheet

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



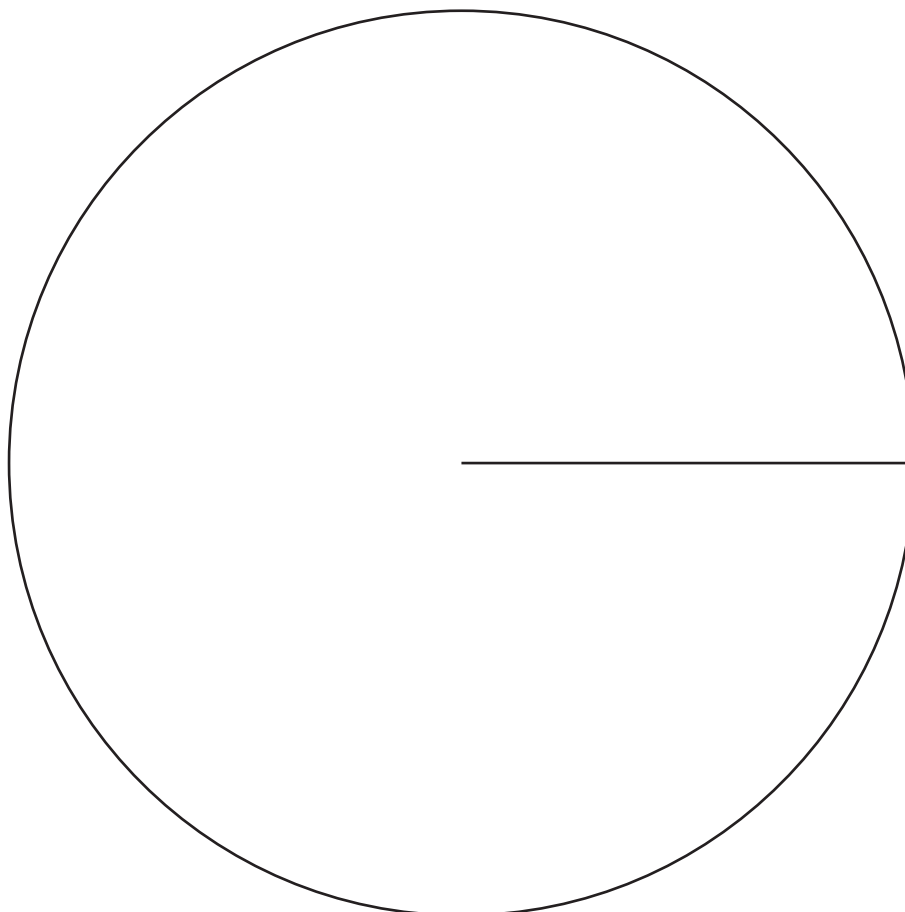
$$\text{Volume of prism} = \text{area of cross section} \times \text{length}$$



- 1 The number of crisps sold in a tuck shop was recorded as follows.

Flavour	Frequency	Angle
Salt and Vinegar	10	
Ready Salted	8	
Smokey Bacon	17	
Cheese and Onion	25	

Draw a pie chart to illustrate this information.



[4]

Examiner Only

Marks Remark

Total Question 1

[Turn over]



Examiner Only	
Marks	Remark
Total Question 2	

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3 (a) Name each of the 3D shapes from the given descriptions.

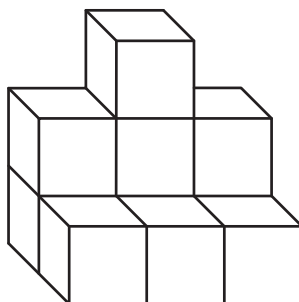
- (i) I have 12 edges. I have 8 vertices.
My faces are not all the same. My faces are all rectangles.

Answer _____ [1]

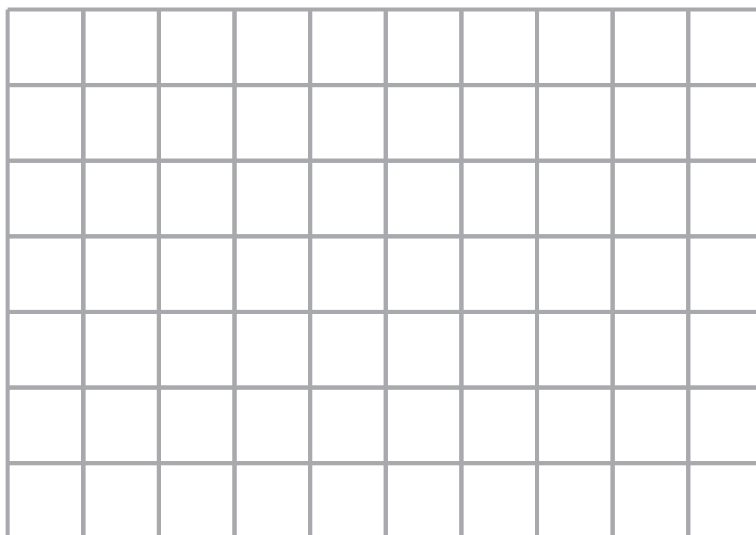
- (ii) I have 9 edges. I have 6 vertices.
I have two triangular faces and three rectangular faces.

Answer _____ [1]

(b) This solid is made up of centimetre cubes.



On the grid below draw the front elevation of the solid.



[2]

Examiner Only

Marks Remark

Total Question 3

[Turn over]



Examiner Only	
Marks	Remark
Total Question 4	

Answer _____ [2]

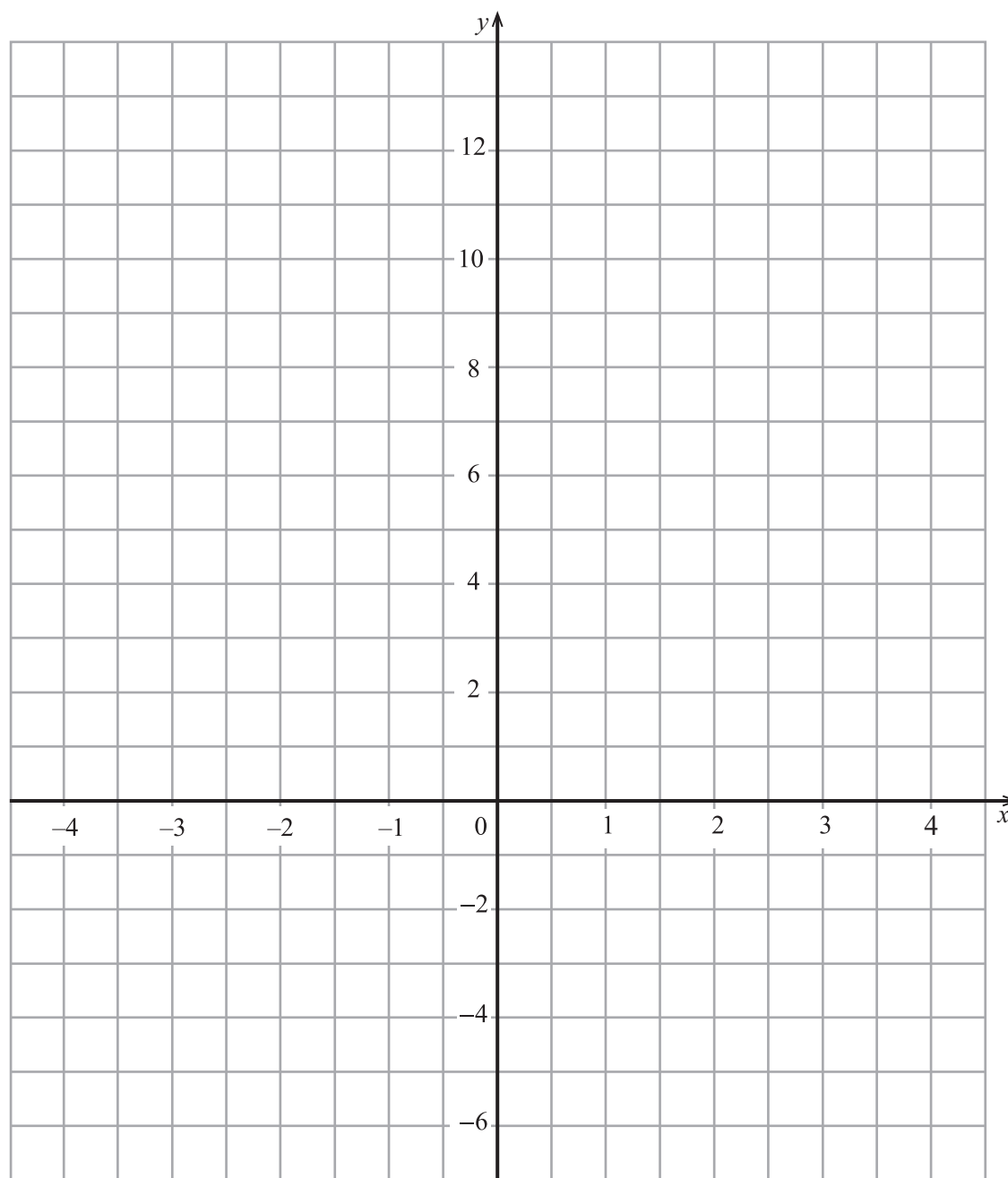
Total Question 4	
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5 (a) Complete the table for $y = 6 - 2x$

x	-1	0	1	2	3
$y = 6 - 2x$	8		4		0

[2]

(b) Using values from the table, draw the graph of $y = 6 - 2x$



[2]

Examiner Only	
Marks	Remark
Total Question 5	

[Turn over



Examiner Only	
Marks	Remark
Total Question 6	

$$\frac{97}{400}$$

Answer _____ [2]

[2]

$$\frac{7}{12} - \frac{1}{6}$$

7 Construct a triangle ABC where AB is 8 cm, AC is 5 cm and angle A is 55°

A \times

[2]

Examiner Only

Marks

Remark

Total Question 7

[Turn over



Calling points:

(a) The 0740 bus from Enniskillen is running 8 minutes late. At what time will it arrive in Ballinamallard?

Answer _____ [1]

- (b)** A girl needs to be in Omagh for an appointment at 1.15 pm. She leaves Enniskillen on the latest possible bus to be in time for her appointment. How long will she have to spend in Omagh before the appointment?

Answer _____ minutes [2]

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Quality of written communication will be assessed in this question.

- 9 The boys in Class 12A scored the following goals in a penalty competition:

6, 10, 9, 8, 7, 6, 7, 10, 9, 8

The 8 boys in Class 12B scored a total of 72 goals.

Which class did better in the competition?

Explain your answer.

Answer _____

because _____

_____ [4]

Examiner Only

Marks Remark

Total Question 9

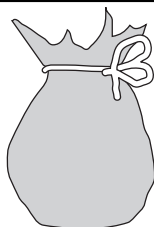
- 10 In a greengrocer's, cooking apples cost £2.65 per kg.
Mary buys 0.6 kg of cooking apples.
She also buys 0.4 kg of tomatoes.
At the checkout her bill for both items comes to £2.83
Work out the price **per kg** for the tomatoes.

Answer £ _____ [4]

Total Question 10

[Turn over]





1



2



3

12 (a) Fill in the boxes to show the next 2 terms in the sequence

16, 11, 6, ,

[2]

(b) The n^{th} term in a sequence is given as

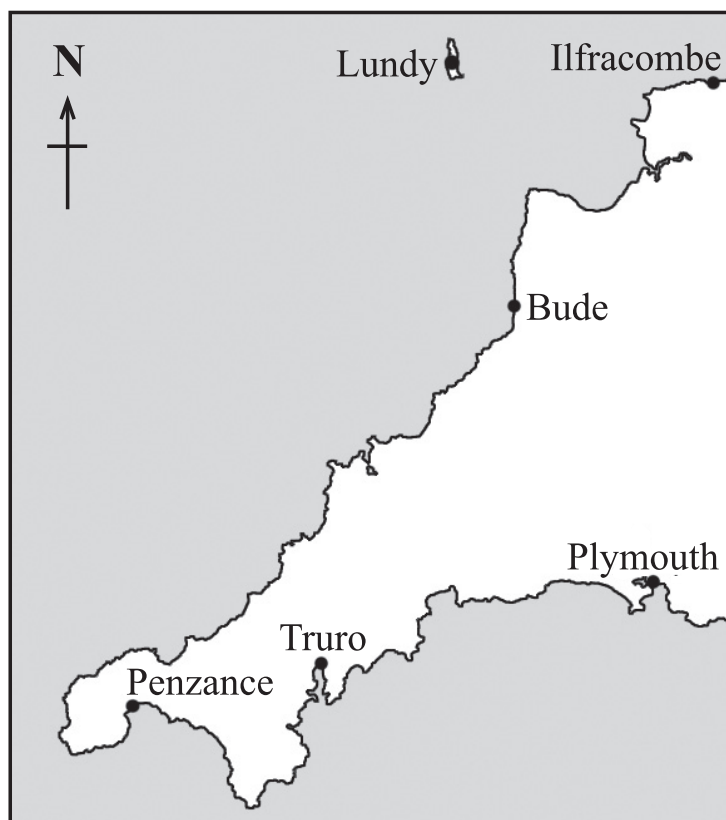
$$2n + \boxed{}$$

The 3rd term is 10. What value is missing from the box?

Answer _____ [2]

Examiner Only	
Marks	Remark
Total Question 12	

13



© Graded examples in Mathematics: Geometry & Trigonometry, by M R Heylings, page 24,
published by Schofield & Sims, 1984. ISBN 0721722314

Boscastle is on a bearing of 028° from Truro.

Boscastle is on a bearing of 310° from Plymouth.

Locate the position of Boscastle on the map above. Indicate Boscastle with a point marked B. [3]

Total Question 13	

[Turn over]



- | Examiner Only | |
|-------------------|--------|
| Marks | Remark |
| | |
| Total Question 14 | |
| | |

[2]

- Answer _____ % [2]

Total Question 14	
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- Answer _____ [1]

- Answer _____ [1]

- Answer _____ [1]

- Total Question 15

Answer _____ [1]

16 The heights (in centimetres) of fifteen girls in a Dance Class are:

151	173	157	165	166	168	170	169
169	169	168	171	154	176	177	

Construct a stem and leaf diagram to illustrate these heights.

[3]

Examiner Only	
Marks	Remark
Total Question 16	

[Turn over]



17

Primus Energy Gas Tariff

Standing charge is 7.93p per day

Gas used is 4.433p per unit

Marie's gas meter was read on 1st March.

The reading was

0	1	9	5	7
---	---	---	---	---

The meter was read again on 1st June.

The reading was

0	4	1	0	8
---	---	---	---	---

Calculate the total gas bill that Marie will have to pay for the 92 days from 1st March, if VAT is charged at 5% on the total.

Answer £ _____ [5]

Examiner Only

Marks	Remark

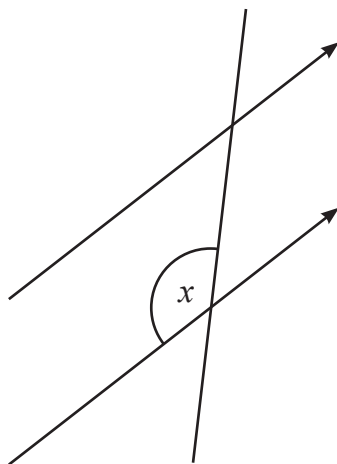
Total Question 17

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Examiner Only	
Marks	Remark
Total Question 18	
Total Question 19	



(b) Calculate the sum of the interior angles of a regular octagon.

Answer _____° [2]

(c) Is it possible to have a regular polygon with an interior angle of 130° ?
Explain your answer.

[2]

19 Convert $62\,000\text{ cm}^2$ into m^2 .

Answer _____ m² [2]

8166

[Turn over



Examiner Only	
Marks	Remark
Total Question 20	

Total Question	20
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Total Question 21

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22 (a) (i) Write 210 as a product of prime factors.

Answer _____ [2]

(ii) Find the LCM of 210 and 84

Answer _____ [2]

(iii) Find the HCF of 210 and 84

Answer _____ [1]

- (b) Andrea opened an account using £720 with the Eastern Bank.
After one year, the bank paid interest into her account.
She then had £747.27 in her account.
Work out, as a percentage, Eastern Bank's interest rate on the account.

Answer _____ % [3]

Examiner Only

Marks Remark

Total Question 22

[Turn over]



- | Examiner Only | |
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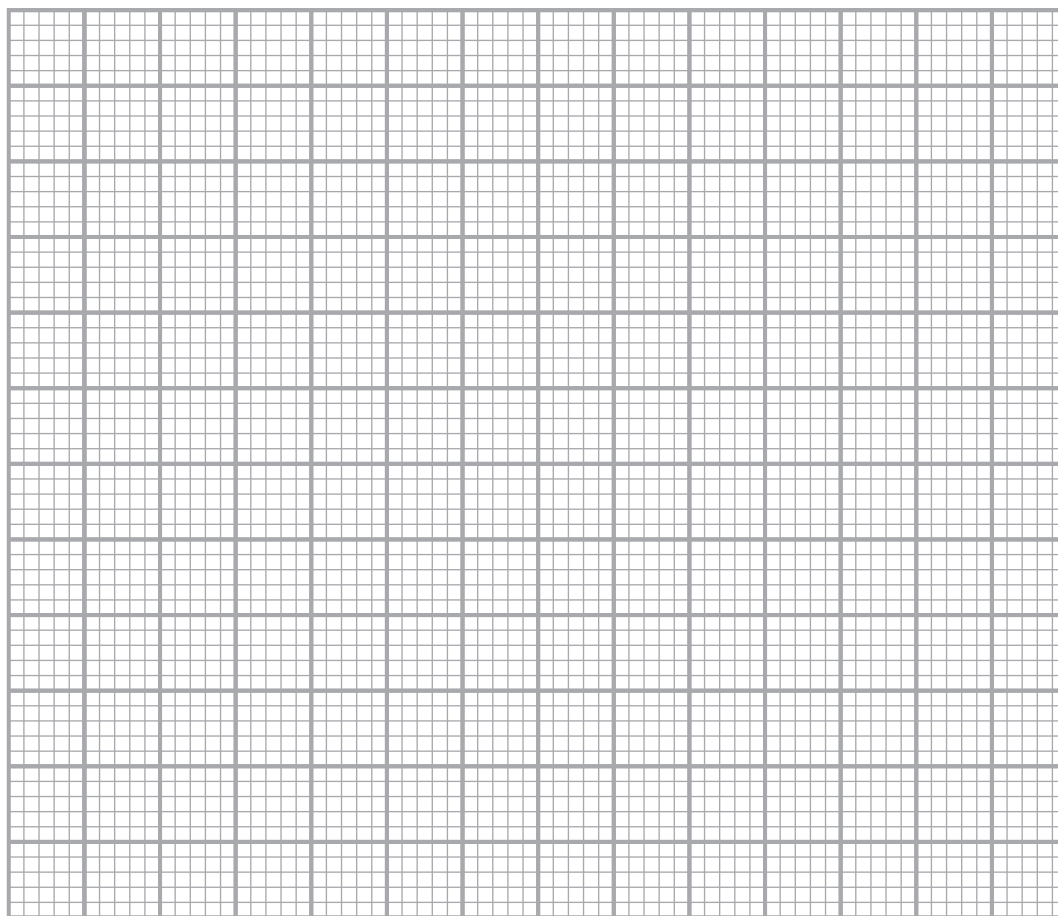


Total Question 23

- 24 The number of items that 80 students had in their sports bags was recorded. The numbers were grouped as shown in the table.

Number (n)	Frequency
$2 < n \leq 4$	8
$4 < n \leq 6$	24
$6 < n \leq 8$	18
$8 < n \leq 10$	17
$10 < n \leq 12$	9
$12 < n \leq 14$	4

- (a) Show this information on a frequency polygon.



[3]

- (b) Which class interval contains the median number?

Answer _____ [1]

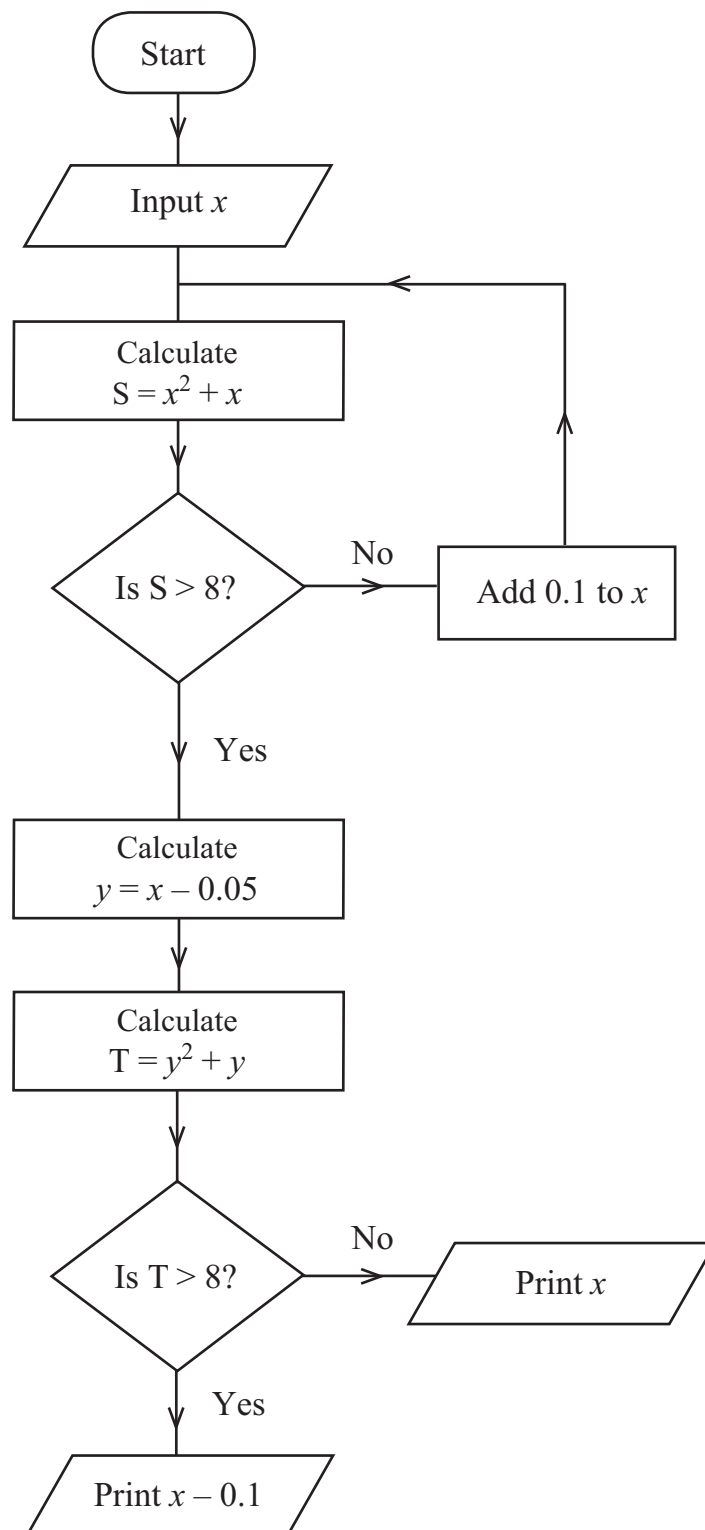
Examiner Only

Marks Remark

Total Question 24

[Turn over]





x	S	y	T

Examiner Only	
Marks	Remark
Total Question 25	

26 The dimensions of three triangles are given:

Only one of these triangles is right-angled. Which one? Explain your answer clearly.

Total Question 26	

8166



Examiner Only	
Marks	Remark
Total Question 27	

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For Examiner's use only	
Question Number	Marks
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Total Marks	

Examiner Number

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