

GENERAL CERTIFICATE OF SECONDARY EDUCATION
MATHEMATICS C
Foundation Tier
TERMINAL PAPER – SECTION A
SPECIMEN

F B281/A

Candidates answer on the question paper.

Time: 1 hour

Additional Materials:

- Geometrical instruments
- Tracing paper (optional)



Candidate Name

Centre Number

| | | | | | |
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|--|--|--|--|--|--|

Candidate Number

| | | | | | |
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INSTRUCTIONS TO CANDIDATES

- Write your name, centre number and candidate number in the boxes above.
- Answer **all** the questions.
- Use blue or black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure you know what you have to do before starting your answer.
- In many questions marks will be given for a correct method even if the answer is incorrect.
- Do **not** write in the bar code.
- Do **not** write outside the box bordering each page.
- WRITE YOUR ANSWER TO EACH QUESTION IN THE SPACE PROVIDED. ANSWERS WRITTEN ELSEWHERE WILL NOT BE MARKED.

INFORMATION FOR CANDIDATES

- The number of marks is given in brackets [] at the end of each question or part question.
- The total number of marks for this section is 50.



WARNING You are not allowed to use a calculator in this paper.

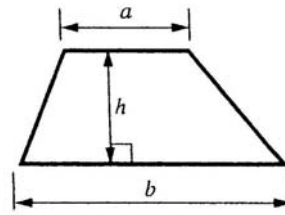
For Examiner's Use

Section A

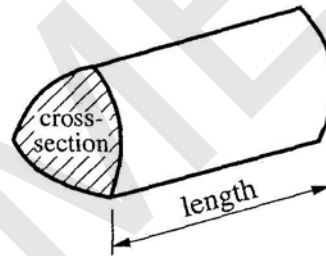
This document consists of **14** printed pages and **2** blank pages.

2
FORMULAE SHEET

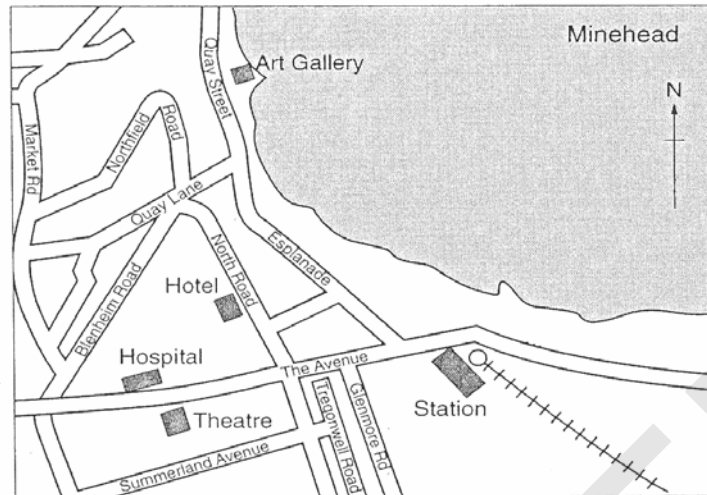
Area of trapezium = $\frac{1}{2}(a+b)h$



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



1 This is a map of Minehead.



(a) Andy turns left out of the Station.
He walks along The Avenue.

(i) Which compass direction is he walking in?

(a)(i) _____ [1]

(ii) Which building is on his right?

(ii) _____ [1]

(b) Roger comes out of the Hotel and turns left into North Road.
He turns left into Blenheim Road.

Which compass direction is he walking in?

(b) _____ [1]

(c) Val walks from the Hotel to the Art Gallery.
Complete these directions for her journey.

Turn left out of the Hotel into North Road.

Turn _____ into Quay Lane. [1]

Turn left into _____ [1]

| | |
|---|--|
| 5 | |
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[Turn over

2 This timetable shows the times (GMT) of some of the Channel Tunnel trains.

| | | | | | | | |
|--------|-------|-------|-------|-------|-------|-------|-------|
| London | 05 33 | 06 34 | 07 39 | 08 12 | 09 09 | 10 12 | 10 42 |
| Paris | 08 23 | 09 23 | 10 23 | 10 47 | 11 53 | 12 53 | 13 34 |
| Paris | 13 43 | 15 07 | 16 10 | 16 43 | 17 16 | 18 19 | 19 43 |
| London | 16 28 | 17 57 | 18 57 | 19 25 | 19 58 | 20 54 | 22 28 |

(a) (i) At what time does the 08 12 from London arrive in Paris?

(a)(i) _____ [1]

(ii) How long does the journey take?

(ii) _____ hours _____ minutes [1]

(b) Bev arrives in Paris at 09 23.

She spends 8 hours shopping in Paris.

What is the time of the next train she can catch back to London?

(b) _____ [1]

(c) Mary is taking her grandchildren to Paris for the day.

She needs 1 adult ticket and 3 child tickets.

This table shows the ticket prices.

| | Single | Return |
|-------|--------|--------|
| Adult | £40 | £59 |
| Child | £25 | £48 |

How much does she save altogether by buying 4 return tickets instead of single tickets?

(c) £ _____ [5]

8

- 3 Use this list of number to complete the statements below.
You can use the numbers more than once.

| | | | | | | | | | |
|---|----|----|----|----|----|----|----|----|----|
| 5 | 10 | 12 | 16 | 18 | 28 | 32 | 42 | 48 | 80 |
|---|----|----|----|----|----|----|----|----|----|

(a) _____ is a square number. [1]

(b) $2 + 5 \times 6 =$ _____ [1]

(c) $(21 - 13) \times (14 - 8) =$ _____ [1]

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| 3 |
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[Turn over

4 This table shows the singles with the highest sales in Britain.

| Artist | Title | Year | Number Sold (millions) |
|------------------------------------|-----------------------------|------|------------------------|
| The Beatles | She Loves you | 1962 | 1.89 |
| Queen | Bohemian Rhapsody | 1975 | 2.13 |
| Wings | Mull of Kintyre | 1977 | 2.05 |
| Boney M | Brown Girl In The Ring | 1978 | 1.99 |
| Boney M | Mary's Boy Child | 1978 | 1.79 |
| John Travolta & Olivia Newton John | You're the One that I Want | 1978 | 1.98 |
| Frankie Goes to Hollywood | Relax | 1983 | 1.91 |
| Band Aid | Do They Know It's Christmas | 1984 | 3.55 |
| Robson & Jerome | Unchained Melody | 1995 | 1.84 |
| Elton John | Candle In The Wind | 1997 | 4.86 |

(a) Which single sold nearest to two million?

[1]

(b) Write down the five largest sales in order, *largest* first.

[2]

largest

(c) There are three singles from 1978 in the top ten.

How many copies did these three singles sell altogether?

(c) _____ million [2]

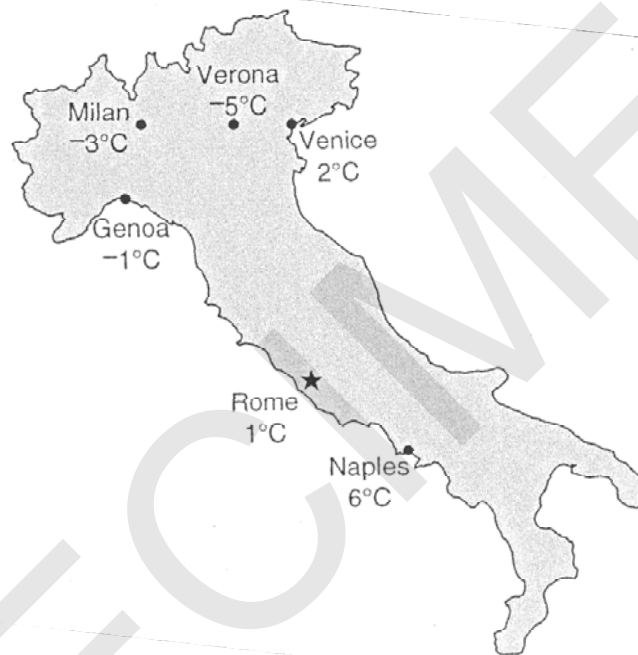
- 4 (d) The Beatles song 'I Want to Hold Your Hand' sold one million seven hundred and fifty thousand singles.

Write one million seven hundred and fifty thousand in figures.

[1]

6

- 5 This map shows the temperatures in some Italian cities one day in winter.



- (a) Which city is the coldest?

(a) _____ [1]

- (b) Complete the sentences.

(i) Genoa is _____ degrees warmer than Milan. [1]

(ii) Genoa is _____ degrees cooler than Naples. [1]

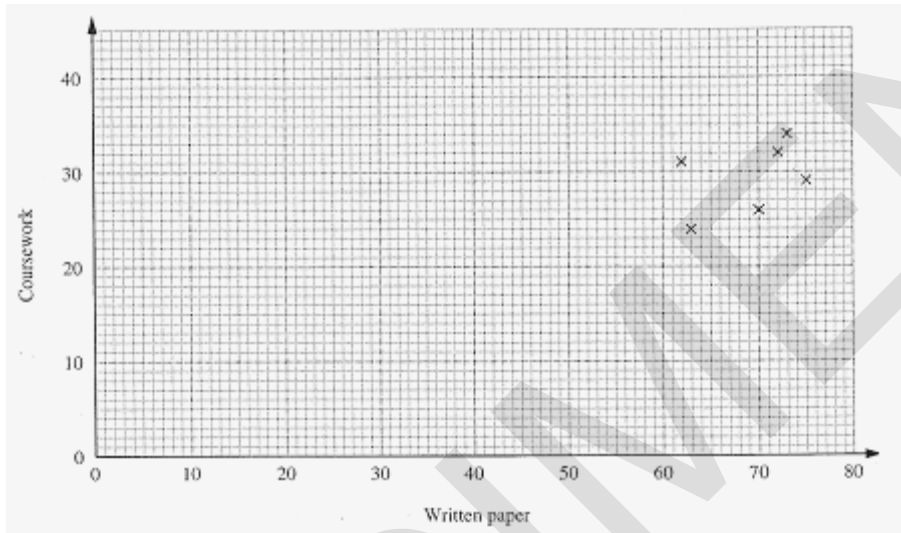
3

[Turn over

- 6 An examination consists of a written paper and a piece of coursework. The marks for 12 candidates are shown below.

| | | | | | | | | | | | | |
|---------------|----|----|----|----|----|----|----|----|----|----|----|----|
| Written Paper | 75 | 73 | 72 | 70 | 63 | 62 | 60 | 55 | 52 | 47 | 33 | 15 |
| Coursework | 29 | 34 | 32 | 26 | 24 | 31 | 25 | 19 | 20 | 18 | 17 | 5 |

The marks for the first six candidates have been plotted on the scatter diagram below.



- (a) Complete the scatter diagram. [2]

- (b) Describe the correlation.

[1]

- (c) (i) Draw a line of best fit on the scatter diagram. [1]

- (ii) Sajid scored 22 on his coursework but was absent for the written paper. Use your line of best fit to estimate a mark for his written paper.

(c)(ii) _____ [1]

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7 (a) Work out.

(i) 0.6×0.4

(a)(i) _____ [1]

(ii) 5^3

(ii) _____ [1]

(b) Write $\frac{7}{8}$ as a decimal.

(b) _____ [2]

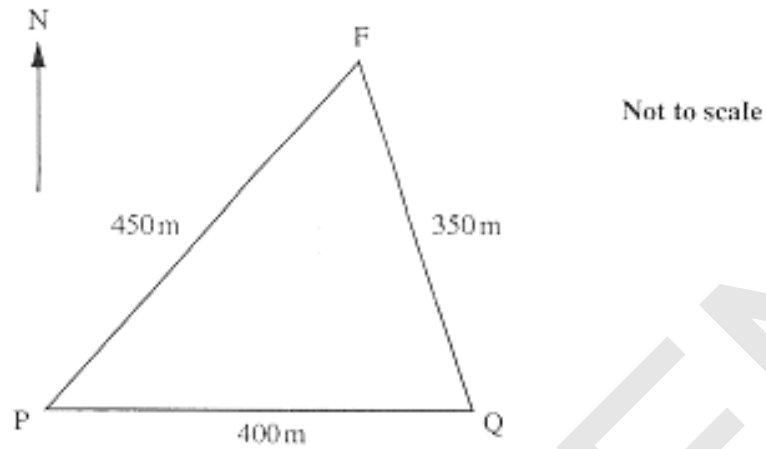
(c) Write 70 out of 200 as a percentage.

(c) _____ % [2]

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[Turn over

- 8 The diagram shows the positions of two piers, P and Q, and a ferry F.
P is due West of Q.



Make an accurate scale drawing of triangle PQR.
Use a scale of **1 cm to 50 m**.

[3]

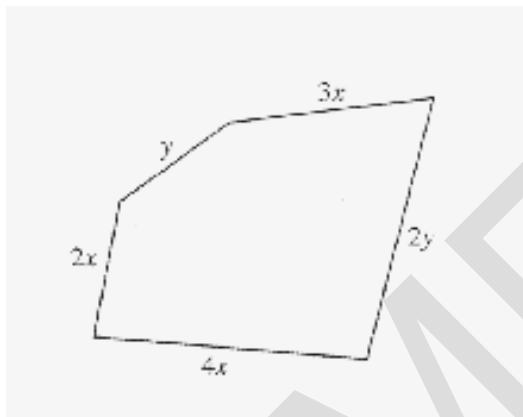
| | |
|---|--|
| 3 | |
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9 (a) Solve.

$$\frac{x}{4} = 11$$

(a) _____ [1]

(b)



Write down, as simply as possible, an expression for the perimeter of this pentagon.

(b) _____ [2]

(c) Factorise.

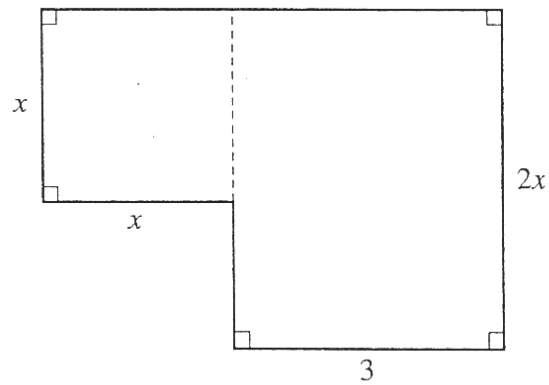
$$10x - 15$$

(c) _____ [1]

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| 4 |
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[Turn over

10 All the lengths in this question are in metres.



The diagram shows the plan of a room.

(a) Show that the area, A , of the room is given by

$$A = x^2 + 6x.$$

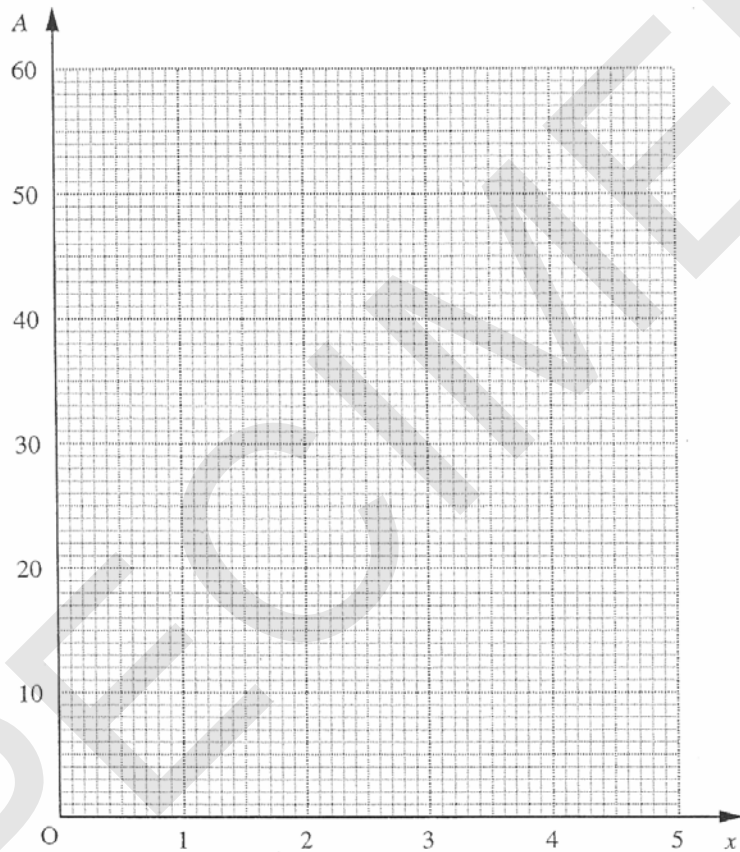
[2]

10 (b) Complete the table for $A = x^2 + 6x$.

| | | | | | | |
|-----|---|---|----|----|----|---|
| x | 0 | 1 | 2 | 3 | 4 | 5 |
| A | 0 | | 16 | 27 | 40 | |

[2]

(c) Draw a graph of $A = x^2 + 6x$ on the grid below.



[2]

(d) The area of the room is 35 m^2 .

Use your graph to find the length of the side x .

(d) _____ m [1]

| |
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| 7 |
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Section A Total [50]

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The maximum mark for this section is 50.

SPECIMEN

| | | | | | |
|---|------------------------------|--|--------------------------|---|--|
| 1 | (a)(i) (ii) (b) (c) | West Hospital South-West Right ... Quay Street | B1 B1 B1 B1 | 5 | |
| 2 | (a)(i) (ii) (b) (c) | 10 47 2 hr 35 mins 18 19 £27 | B1 B1 B1 M2A3 | 8 | M1 $59=3 \times 48$ or $2(40+3 \times 25)$ A1 £203 A1 230 M1 230-203 |
| 3 | (a) (b) (c) | 16 32 48 | B1 B1 B1 | 3 | |
| 4 | (a) (b) (c) (d) | Brown girl in the ring 4.86, 3.55, 2.13, 2.005, 1.99 5.76 1 750 000 | B1 B2 M1A1 B1 | 6 | B1 0e00 M1 $1.99=1.79=1.98$ |
| 5 | (a) (b)(i) (ii) | Verona 2 7 | B1 B1 B1 | 3 | |
| 6 | (a) (b) (c)(i) (ii) | 5 or 6 correct plots Positive l.o.b.f 50-56 | B2 B1 B1 B1 | 5 | B1 3 or 4 correct plots |
| 7 | (a)(i) (ii) (b) (c) | 0.24 125 0.875 35% | B1 B1 M1A1 M1A1 | 6 | M1 $7 \div 8$ M1 $\frac{35}{100}$ or $70 \div 200 \times 100$ |
| 8 | | PQ 8 cm PF 9 cm QF 7 cm | B1 B1 B1 | 3 | All lines ± 2 mm |

| | | | | | |
|----|--------------------------|---|---------------------------|---|-----------------------------------|
| 9 | (a) (b) (c) | 44 $9x + 3y$ $5(2x - 3)$ | B1 B2 B1 | 4 | B1 $9x$ or $3y$ |
| 10 | (a) (b) (c) (d) | $x \times x + 3 \times 2x$ 7, ..., ..., ..., 55 smooth curve through plotted points 3.5 – 3.7 ft | B2 B1 B1 B2 B1ft | 7 | Convincing B1 1 error in plots |

Section A Total 50

SPECIMEN

Assessment Objectives Grid

| Question | AO2 | AO3 | AO4 | Total |
|-----------------|------------|------------|------------|--------------|
| 1 | | 5 | | 5 |
| 2 | 5 | | 3 | 8 |
| 3 | 3 | | | 3 |
| 4 | 6 | | | 6 |
| 5 | 3 | | | 3 |
| 6 | | | 5 | 5 |
| 7 | 6 | | | 6 |
| 8 | | 3 | | 3 |
| 9 | 4 | | | 4 |
| 10 | 7 | | | 7 |
| Totals | 34 | 8 | 8 | 50 |