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Centre number						Candidate number				
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**OXFORD CAMBRIDGE AND RSA EXAMINATIONS
GENERAL CERTIFICATE OF SECONDARY EDUCATION**

B281B

**MATHEMATICS C
(GRADUATED ASSESSMENT)**

Terminal Paper – Section B (Foundation Tier)

TUESDAY 11 JANUARY 2011: Morning

DURATION: 1 hour

SUITABLE FOR VISUALLY IMPAIRED CANDIDATES

Candidates answer on the question paper.

OCR SUPPLIED MATERIALS:

None

OTHER MATERIALS REQUIRED:

Geometrical instruments

Tracing paper (optional)

Pie chart scale (optional)

Scientific or graphical calculator

READ INSTRUCTIONS OVERLEAF

INSTRUCTIONS TO CANDIDATES

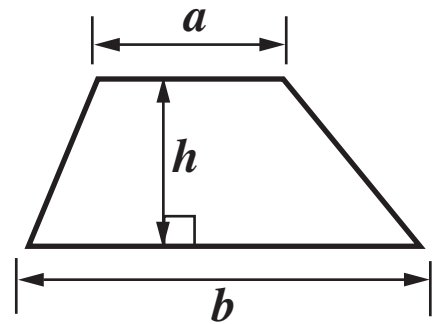
- **Write your name, centre number and candidate number in the boxes on the first page. Please write clearly and in capital letters.**
- **Use black ink. Pencil may be used for graphs and diagrams only.**
- **Read each question carefully. Make sure you know what you have to do before starting your answer.**
- **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).**
- **Show all your working. Marks may be given for a correct method even if the answer is incorrect.**
- **Answer ALL the questions.**

INFORMATION FOR CANDIDATES

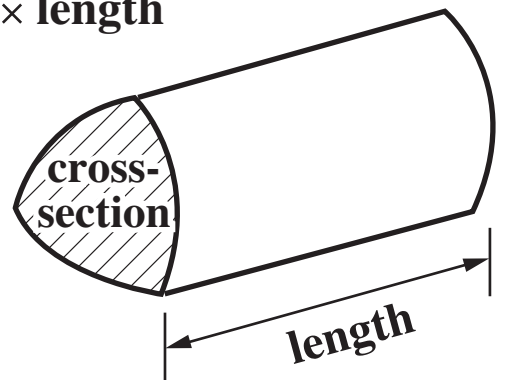
- **The number of marks is given in brackets [] at the end of each question or part question.**
- **Section B starts with question 11.**
- **You are expected to use a calculator in Section B of this paper.**
- **Use the π button on your calculator or take π to be 3.142 unless the question says otherwise.**
- **The total number of marks for this Section is 50.**

Formulae Sheet

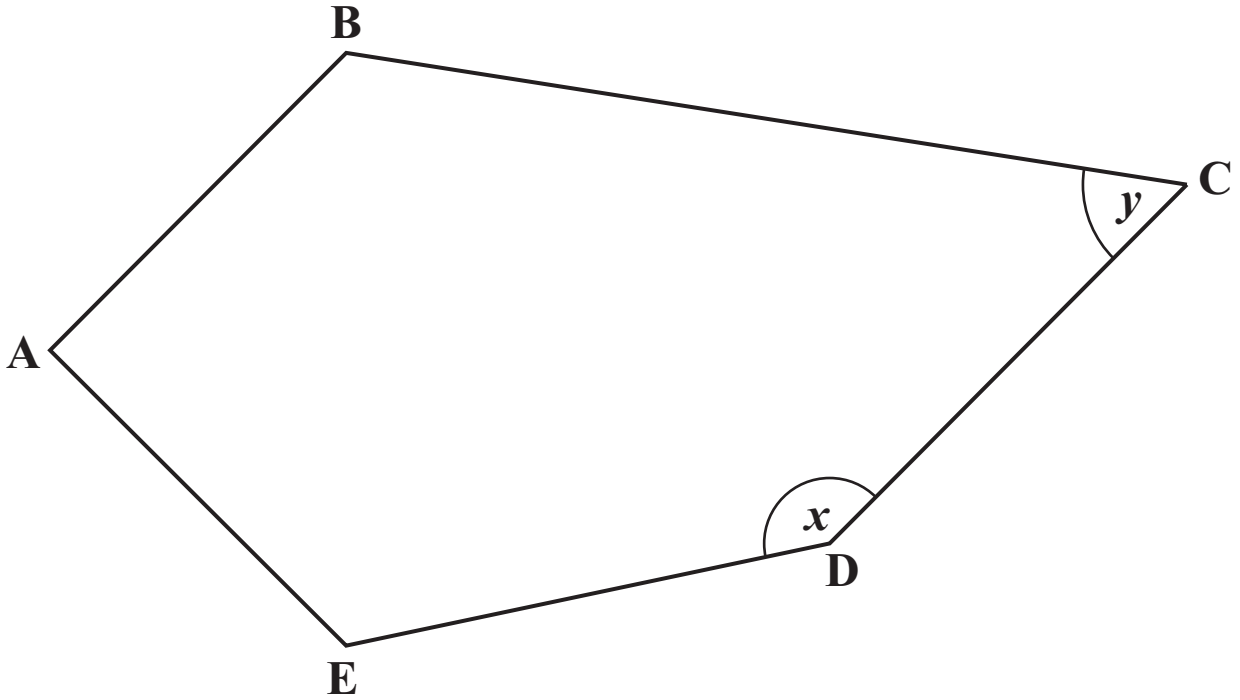
Area of trapezium = $\frac{1}{2} (a + b)h$



Volume of prism = (area of cross-section) \times length



11 ABCDE is a pentagon.



- (a) Measure the length AB.
Give the units of your answer.

(a) _____ [2]

- (b) Which line is perpendicular to AB?

(b) _____ [1]

**(c) What type of angle is angle x ?
Put a ring round the correct word.**

reflex acute right-angled obtuse [1]

(d) Measure angle y .

(d) _____[°] [1]

**12 Vivek travels from Oakengates to Wolverhampton one Sunday morning.
Here is the train timetable.**

Shrewsbury	0822	0842	0922	0935	1022	1035
Wellington	0835	0855	0935	0948	1035	1048
Oakengates	—	0859	—	0954	—	1054
Telford Central	0841	0902	0941	0957	1041	1057
Shifnal	—	0907	—	1002	—	1102
Cosford	—	0912	—	1007	—	1107
Albrighton	—	0915	—	1010	—	1110
Codsall	—	0921	—	1016	—	1116
Bilbrook	—	0923	—	1018	—	1118
Wolverhampton	0858	0930	0958	1027	1058	1127

(a) How many minutes does the train that leaves Oakengates at 0859 take to get to Wolverhampton?

(a) _____ [1]

(b) Vivek is meeting Haroon at Wolverhampton station at 1100.

(i) Haroon says:

You can catch the train from Oakengates that arrives in Wolverhampton at 1058.

Explain why Haroon is wrong.

_____ [1]

(ii) At what time does the latest train Vivek can use leave Oakengates?

(b)(ii) _____ [1]

(iii) Vivek wants to arrive at Oakengates station a quarter of an hour before this train leaves.

When should he arrive at the station?

(iii) _____ [1]

**(c) The normal fare is £4.90.
With a railcard the fare is £3.25.**

How much cheaper is the fare using the railcard?

(c) £ _____ [1]

13 This table shows the temperature at noon one day in January for five cities.

City	Temperature (°C)
London	6
Moscow	-9
New York	-4
Oslo	-2
Rome	11

(a) Which of these cities has the lowest temperature?

(a) _____ [1]

(b) What is the difference between the temperatures in London and New York?

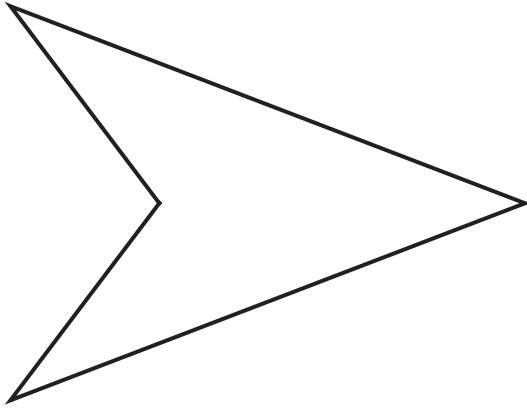
(b) _____°C [1]

(c) St Petersburg is 2°C warmer than Moscow.

What is the temperature in St Petersburg?

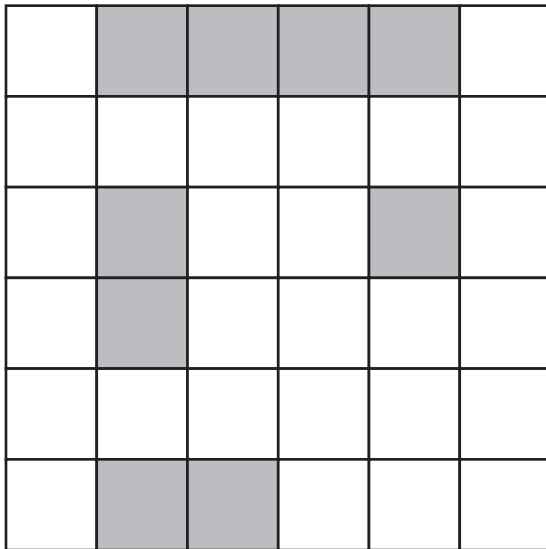
(c) _____°C [1]

14 (a) Draw the line of symmetry on this shape.



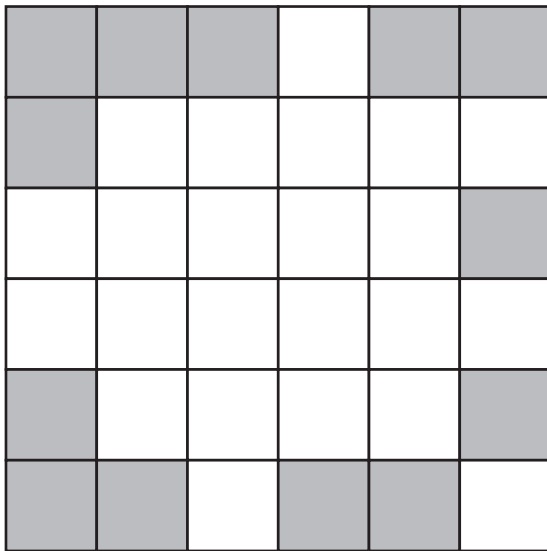
[1]

(b) Shade 3 more squares so that this grid has just TWO lines of symmetry.



[2]

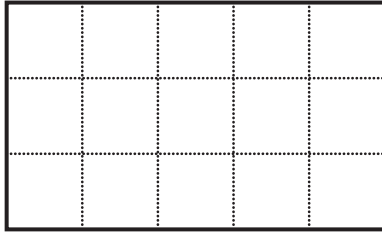
(c) Shade 3 more squares so that this grid has rotation symmetry of order 4.



[2]

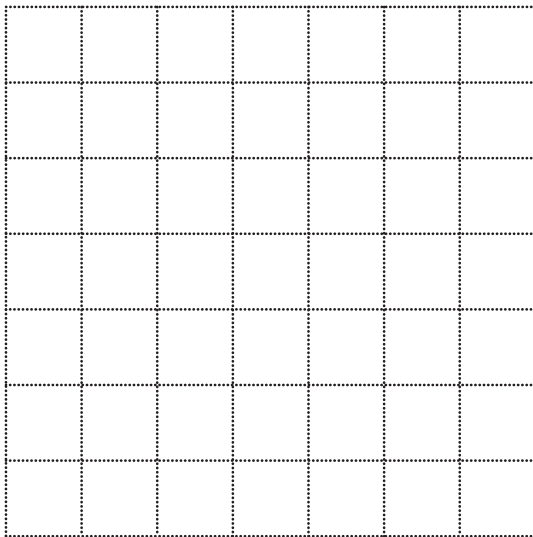
15 (a) This rectangle is drawn on a centimetre grid.

Find the perimeter of this rectangle.



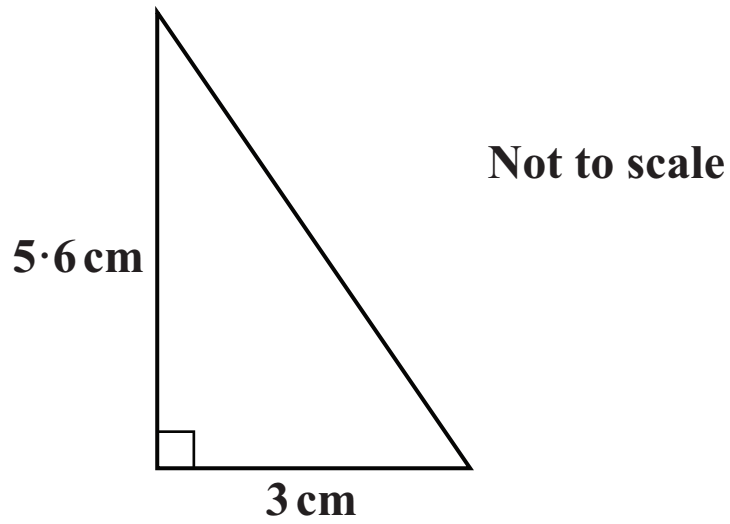
(a) _____ cm [1]

(b) On the centimetre grid below, draw a rectangle with area 12 cm^2 .



[1]

(c) Calculate the area of this triangle.



(c) _____ cm² [2]

**16 Jan went to Paris for the day for her birthday in 2008.
Altogether, Jan spent €58·90 in Paris.**

Jan spent

- **€7·80 to go up the Eiffel tower**
- **€10·00 on a boat trip on the Seine**
- **€13·20 on a meal**
- **€23·70 on buying clothes.**

**Jan also travelled on the metro.
Each metro journey cost €1·40.**

**(a) How many metro journeys did Jan make?
Show your method.**

(a) _____ [3]

(b) The conversion rate was €1.22 to £1.

**Convert Jan's €58.90 to pounds.
Give your answer to the nearest penny.**

(b) £ _____ [3]

17 (a) Solve.

(i) $3x = 12$

(a)(i) _____ [1]

(ii) $2x - 7 = 2$

(ii) _____ [2]

(b) Simplify.

(i) $3t + 5w + 4t - 2w$

(b)(i) _____ [2]

(ii) $3 \times c \times c$

(ii) _____ [1]

18 Ali has a fair six-sided dice numbered 1 to 6.
 He also has a fair four-sided dice numbered 1 to 4.
 He throws the two dice together and adds the numbers to get his score.

(a) Complete this table to show all the possible scores.

		Number on six-sided dice					
		+	1	2	3	4	5
Number on four-sided dice	1	2	3	4	5	6	7
	2	3	4	5	6	7	8
	3						
	4						

[1]

(b) What is the probability that Ali's score is

(i) 5,

(b)(i) _____ [1]

(ii) 1,

(ii) _____ [1]

(iii) 8 or more?

(iii) _____ [1]

- 19 (a) The Avon cricket pitch is circular.
The diameter of the pitch is 140 m.**

**Work out the distance round the pitch.
Give your answer correct to a suitable degree of
accuracy.**

(a) _____ m [3]

(b) In one match the Avon cricket team scores 51 runs in the first 6 overs.

Assuming that the team continues to score at the same rate, how many runs will the team score in 20 overs?

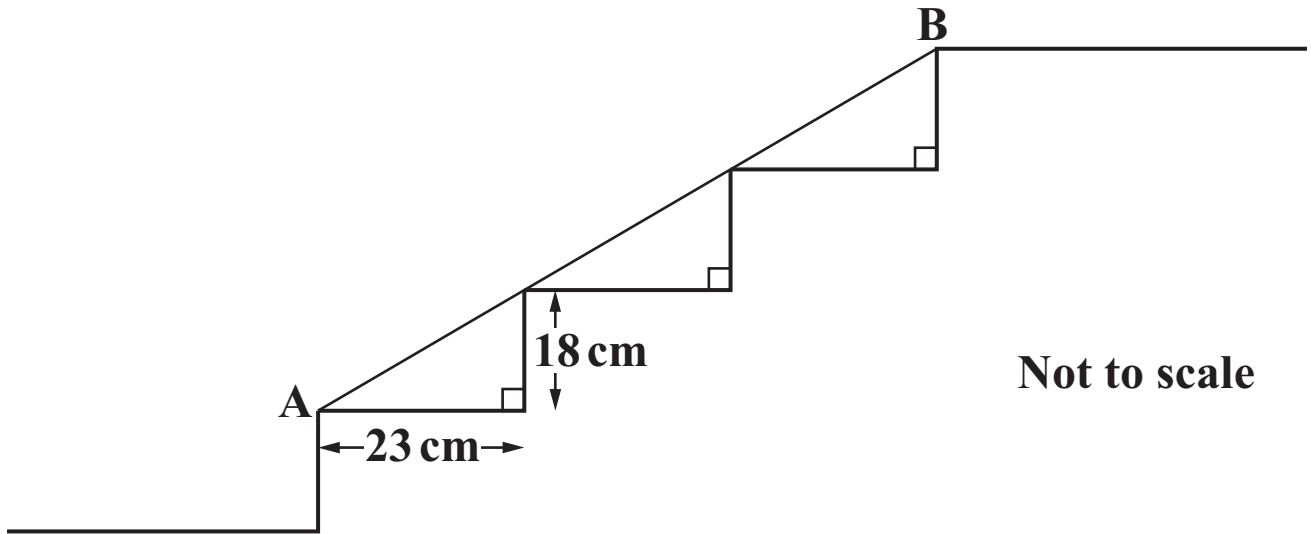
(b) _____ [2]

**20 In 2003 there were 55 700 pairs of puffins on the Farne Islands.
By 2008 there were only 36 500 pairs of puffins.**

Calculate the percentage reduction in the number of pairs of puffins.

_____ % [3]

- 21 This is the side view of a set of steps.
Each step is the same width and height.
A piece of wood is fitted from A to B as shown.



Work out the length AB.

_____ cm [4]

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