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**GENERAL CERTIFICATE OF SECONDARY EDUCATION
MATHEMATICS C (GRADUATED ASSESSMENT)**

B281B

Terminal Paper – Section B (Foundation Tier)

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

**Tuesday 11 January 2011
Morning**

Duration: 1 hour



Candidate forename		Candidate surname	
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Centre number						Candidate number				
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INSTRUCTIONS TO CANDIDATES

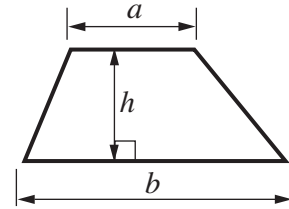
- Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Write your answer 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 your working. Marks may be given for a correct method even if the answer is incorrect.
- Answer **all** the questions.
- Do **not** write in the bar codes.

INFORMATION FOR CANDIDATES

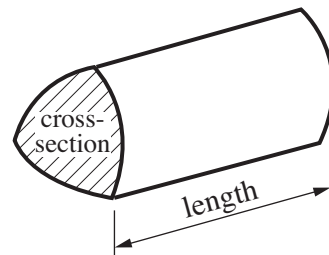
- The number of marks is given in brackets [] at the end of each question or part question.
- Section B starts with question 11.
- You are expected to use a calculator in Section B of this paper.
- Use the π button on your calculator or take π to be 3.142 unless the question says otherwise.
- The total number of marks for this Section is **50**.
- This document consists of **16** pages. Any blank pages are indicated.

Formulae Sheet

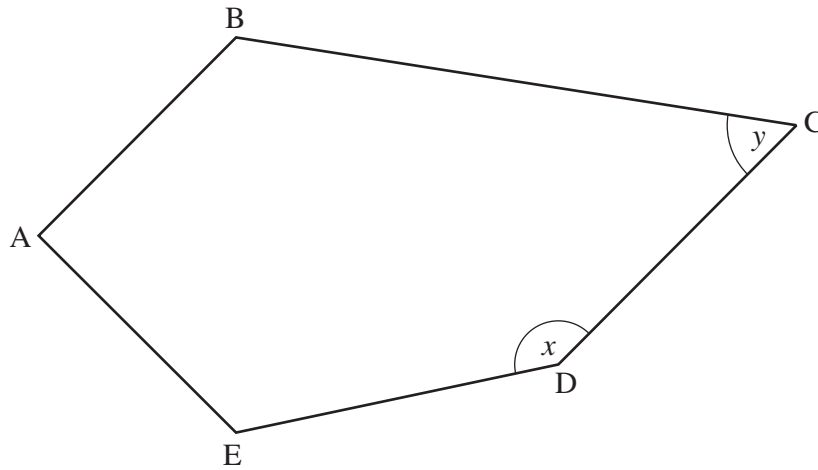
$$\text{Area of trapezium} = \frac{1}{2} (a + b)h$$



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



PLEASE DO NOT WRITE ON THIS PAGE



(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)^o [1]

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

Shrewsbury	0747	0822	0842	0922	0935	1022	1035
Wellington	0800	0835	0855	0935	0948	1035	1048
Oakengates	0804	—	0859	—	0954	—	1054
Telford Central	0807	0841	0902	0941	0957	1041	1057
Shifnal	0812	—	0907	—	1002	—	1102
Cosford	0817	—	0912	—	1007	—	1107
Albrighton	0820	—	0915	—	1010	—	1110
Codsall	0826	—	0921	—	1016	—	1116
Billbrook	0828	—	0923	—	1018	—	1118
Wolverhampton	0835	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 ($^{\circ}\text{C}$)
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?

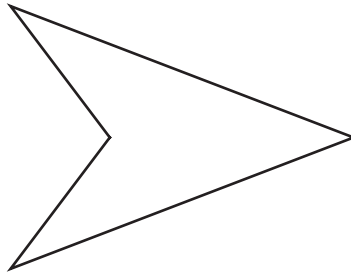
(b) $^{\circ}\text{C}$ [1]

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

What is the temperature in St Petersburg?

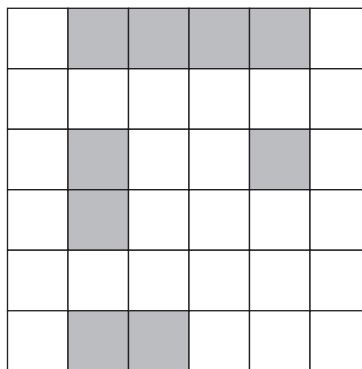
(c) $^{\circ}\text{C}$ [1]

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



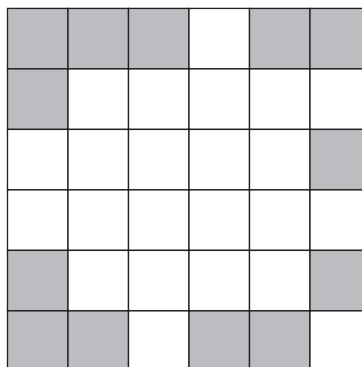
[1]

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



[2]

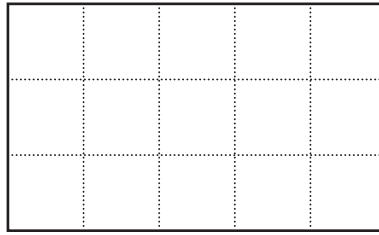
(c) Shade 3 more squares so that this grid has rotation symmetry of order 4.



[2]

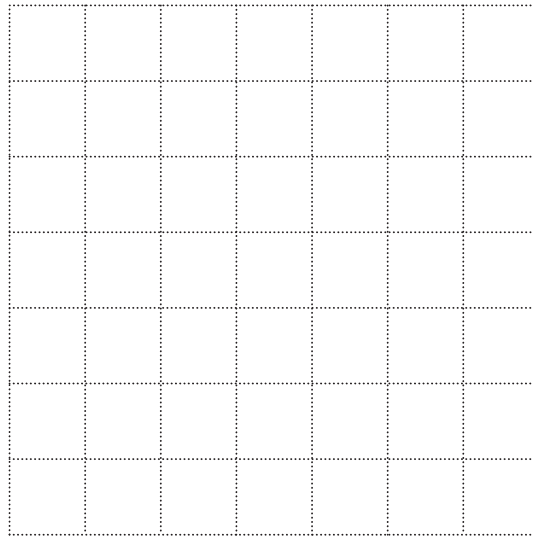
- 15 (a) This rectangle is drawn on a centimetre grid.

Find the perimeter of this rectangle.



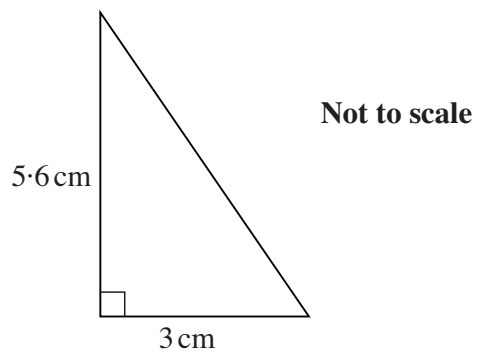
(a) cm [1]

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



[1]

- (c) Calculate the area of this triangle.



(c) cm^2 [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	6
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]

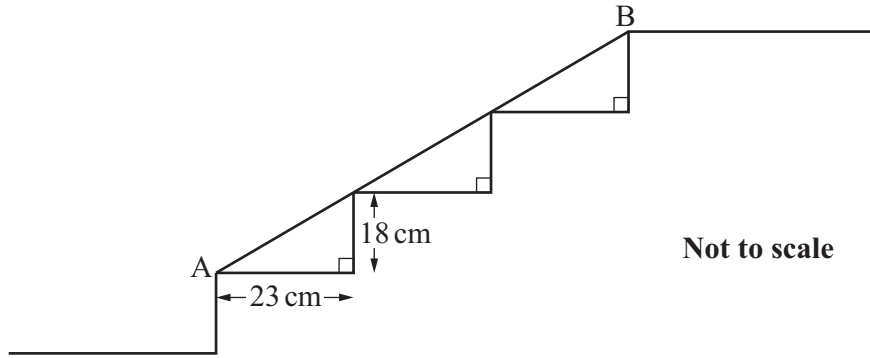
- 20 In 2003 there were 55 700 pairs of puffins on the Farne Islands.
By 2008 there were only 36 500 pairs of puffins.

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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