

GENERAL CERTIFICATE OF SECONDARY EDUCATION
MATHEMATICS C (GRADUATED ASSESSMENT)
MODULE M7 – SECTION A

B277A

Candidates answer on the Question Paper

OCR Supplied Materials:
None

Other Materials Required:

- Geometrical instruments
- Tracing paper (optional)

Monday 8 March 2010
Morning

Duration: 30 minutes



Candidate Forename		Candidate Surname	
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Centre Number						Candidate Number				
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INSTRUCTIONS TO CANDIDATES

- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- 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.
- Write your answer to each question in the space provided, however additional paper may be used if necessary.

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 **25**.
- This document consists of **8** pages. Any blank pages are indicated.

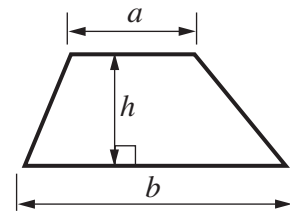
WARNING



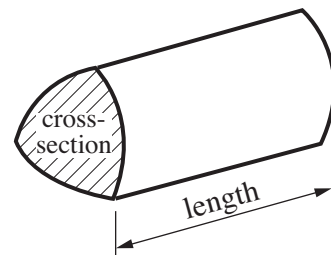
No calculator can be used for Section A of this paper

Formulae Sheet

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



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



PLEASE DO NOT WRITE ON THIS PAGE

- 1 (a) In Pen-y-Fford Tennis Club there are 18 Junior members.
The ratio of boys to girls is 2 : 1.

How many of the Junior members are boys?

(a) [2]

- (b) For Hawarden Tennis Club members, the ratio of
Men : Women : Juniors is 2 : 3 : 1.
There are 24 Women members.

How many of the members are Men?

(b) [2]

- 2 (a) Express as a single power of 6.

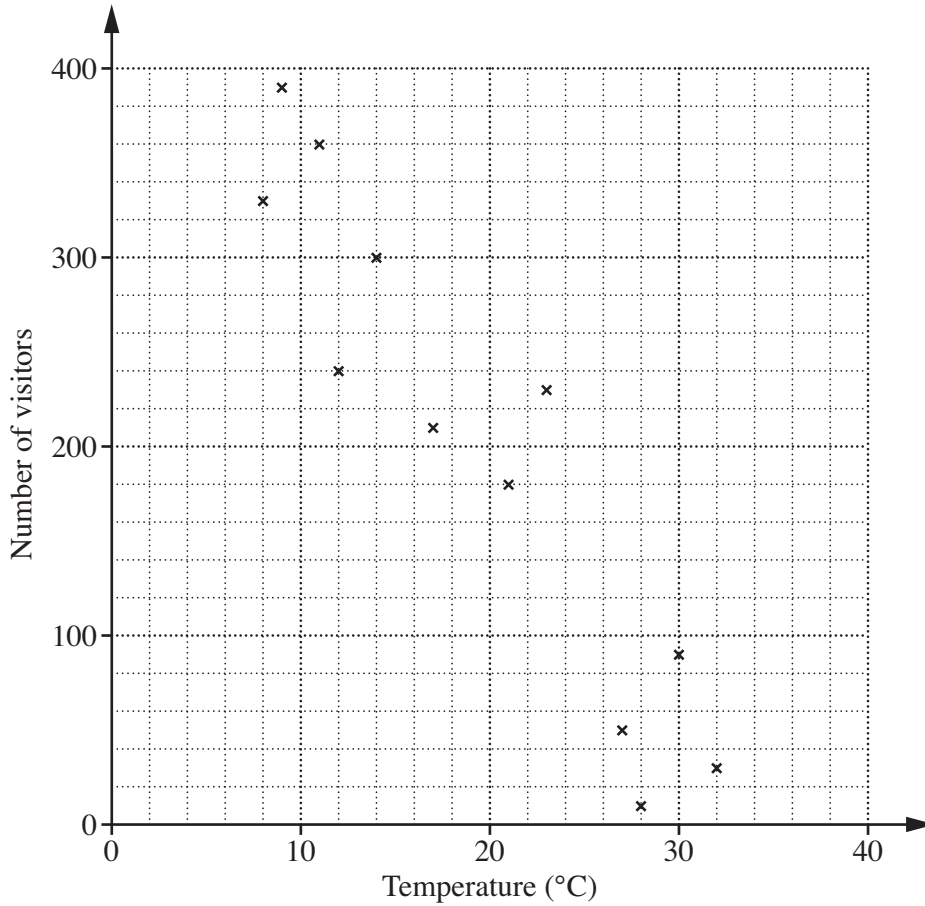
$$\frac{6^3 \times 6^6}{6^7}$$

(a) [1]

- (b) Express 420 as the product of its prime factors.

(b) [2]

- 3 This graph shows the daily visitor numbers at a tourist attraction and the outside midday temperatures for 12 days during one year.



- (a) Describe the strength and type of correlation shown.

(a) [1]

- (b) Draw a line of best fit on the diagram.

[1]

- (c) Use your line of best fit to predict the number of visitors the attraction might expect on a day when the outside temperature is 18°C at midday.

(c) [1]

4 (a) Solve.

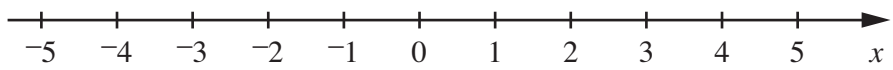
$$2(x + 7) = 6x$$

(a) [3]

(b) Solve this inequality.

$$2x + 6 \leq 0$$

Represent your solution on the number line.



[3]

- 5 (a) Write down the decimal equivalent of $\frac{2}{3}$.

(a) [1]

- (b) Express 0.128 as a fraction in its lowest terms.

(b) [2]

- 6 (a) Here are the first 3 patterns in a triangular dot sequence.



The number of dots in the n th pattern of the sequence is $\frac{n(n+1)}{2}$.

How many dots are there in the 20th pattern?

(a) [2]

- (b) Here are the first 4 terms in another sequence.

1 3 5 7

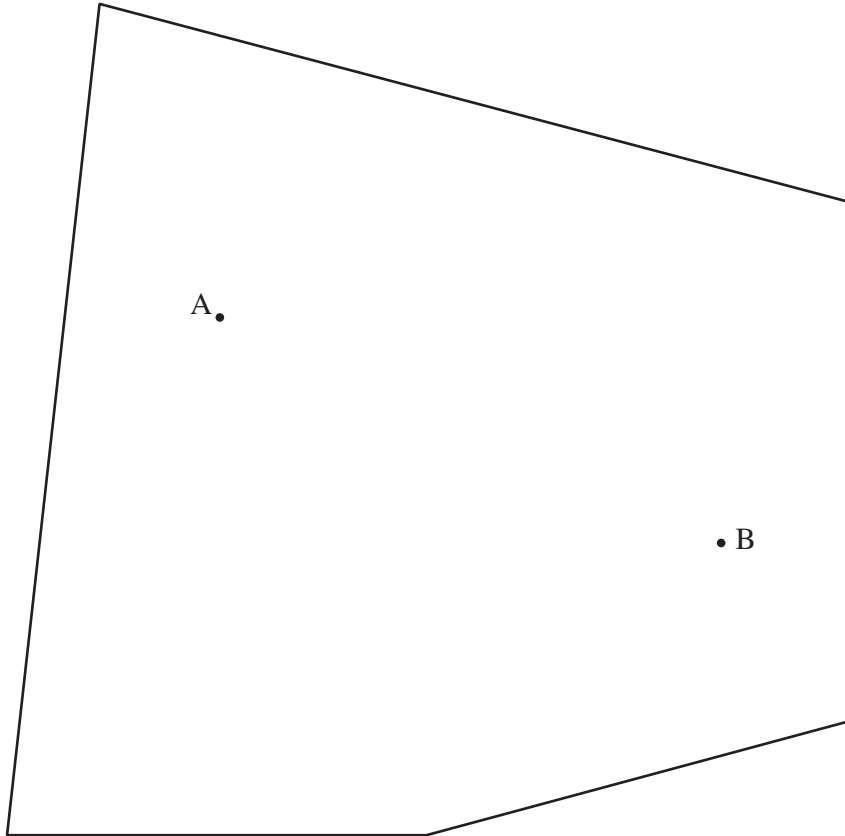
Find an expression for the n th term.

(b) [2]

TURN OVER FOR QUESTION 7

- 7 This scale drawing shows a field, with two trees A and B.
A path crosses the field, keeping an equal distance from the two trees.

Use ruler and compasses to construct the locus of the path.
Leave in all your construction lines.



[2]

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