OCR
RECOGNISING ACHIEVEMENT

B277A

GENERAL CERTIFICATE OF SECONDARY EDUCATION

MATHEMATICS C (GRADUATED ASSESSMENT)

MODULE M7 – SECTION A

MONDAY 21 JANUARY 2008

M7

Morning

Time: 30 minutes

Candidates answer on the question paper.
Additional materials: Geometrical instruments
Tracing paper (optional)

CUP/T49157

Candidate Forename | Candidate Surname

Centre Number | Candidate Number

INSTRUCTIONS TO CANDIDATES

- Write your name in capital letters, your 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 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.
- Do **not** write in the bar codes.
- Do **not** write outside the box bordering each page.
- Write your answer to each question in the space provided.

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.

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

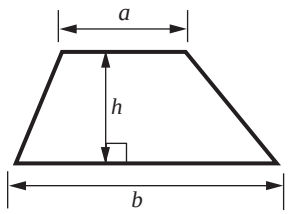
FOR EXAMINER'S USE	
SECTION A	
SECTION B	
TOTAL	

This document consists of **8** printed pages.

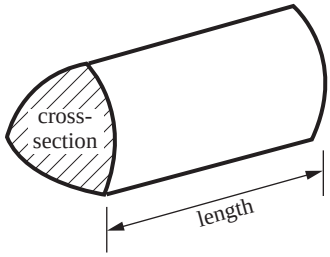
[Turn over

Formulae Sheet

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



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



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1 By rounding each number to one significant figure estimate the answer to this calculation.

$$\frac{327{\cdot}8 \times 8{\cdot}1}{3{\cdot}7}$$

Show your working clearly.

..... [2]

2

2 **(a)** Multiply out and simplify.

$$3(x-2)+4(x-1)$$

(a) ..... [2]

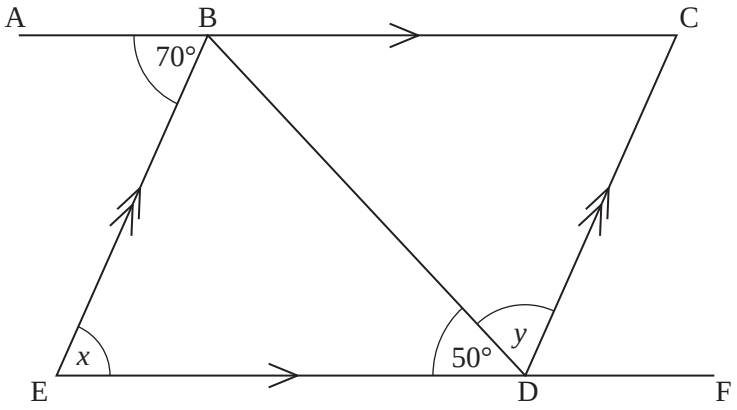
(b) Expand.

$$(x+4)(x+5)$$

(b) ..... [2]

4

3 BCDE is a parallelogram.
ABC and EDF are straight lines.
Angle ABE = 70° and angle BDE = 50°.



Not to scale

(a) Work out angle *x*.
Give a reason for your answer.

x .....° because .....

.....

..... [2]

(b) Work out angle *y*.
Give a reason for each step of your answer.

y .....° because .....

.....

..... [3]

5

4 **(a)** Mike has a **biased** six-sided dice.

The relative frequency of the dice showing the numbers 1 to 5 is given in this table.

Number on dice	1	2	3	4	5	6
Relative frequency	0·15	0·25	0·18	0·12	0·10	.....

(i) Complete the table. [2]

(ii) Mike is going to throw the dice 400 times.

About how many times would he expect the dice to show a 2?

(a)(ii)..... [1]

(b) Mary has an **ordinary, unbiased** six-sided dice.

Whose dice is more likely to show a 5?
Explain your answer.

..... dice is more likely to show a 5 because .....

.....

..... [2]

5

5 **(a)** Show that $2^2 \times 3^3 \times 5 = 540$.

.....

..... [1]

(b) Write 240 as a product of prime factors.

(b) ..... [2]

(c) Find the highest common factor (HCF) of 240 and 540.

(c) ..... [2]

5

6 Work out the value of $4x^2 + xy$ when $x = -3$ and $y = 2$.

..... [2]

2

7 These statements describe the relationship between two variables.

A Strong positive correlation

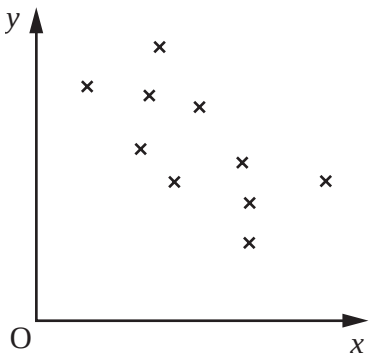
B Weak positive correlation

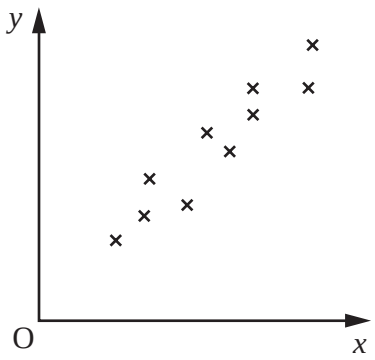
C No correlation

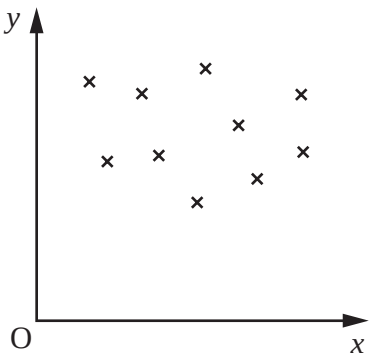
D Weak negative correlation

E Strong negative correlation

Under each diagram write A, B, C, D or E to identify the statement which best describes the relationship.







.... [2]

2

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