

Centre No.						Paper Reference						Surname	Initial(s)		
Candidate No.						5	5	4	2	H	/	8	H	Signature	

Paper Reference(s)

**5542H/8H**

**Edexcel GCSE**

**Mathematics**

Unit 2 Stage 1

**Higher Tier**

Specimen Paper

Time: 30 minutes



Examiner's use only

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Team Leader's use only

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Question Number	Leave Blank
1	
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24	
25	
Total	

**Materials required for examination**

Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser.  
Tracing paper may be used.

**Items included with question papers**

Nil

**Instructions to Candidates**

In the boxes above, write your centre number, candidate number, your surname, initials and signature. Check that you have the correct question paper.

Answer ALL the questions. The questions must be answered by marking the response **■**.

If you change your mind about an answer, put a cross through the response **✗** and then indicate your new answer by marking the response **■**.

**You must NOT write on the formulae page. Anything you write on the formulae page will gain NO credit.**

**Information for Candidates**

There are 25 questions in this question paper. The total mark for this paper is 25.

There are 8 pages in this question paper. Any blank pages are indicated.

**Calculators must not be used.**

**Advice to Candidates**

Show all stages in any calculations.

Work steadily through the paper. Do not spend too long on one question.

If you cannot answer a question, leave it and attempt the next one.

Return at the end to those you have left out.

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W850/R5542H/57570 2/3



**Turn over**

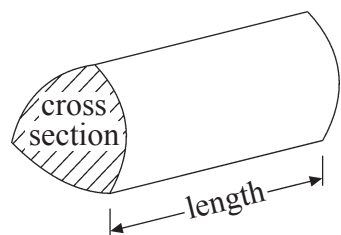
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GCSE Mathematics

Formulae: Higher Tier

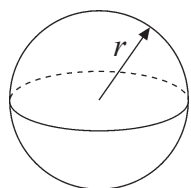
You must not write on this formulae page.  
Anything you write on this formulae page will gain NO credit.

Volume of a prism = area of cross section  $\times$  length



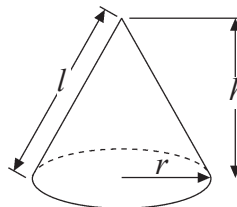
Volume of sphere =  $\frac{4}{3}\pi r^3$

Surface area of sphere =  $4\pi r^2$

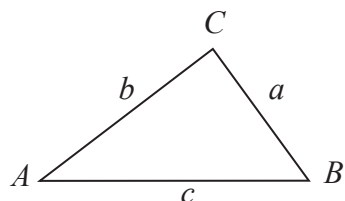


Volume of cone =  $\frac{1}{3}\pi r^2 h$

Curved surface area of cone =  $\pi r l$



In any triangle ABC



The Quadratic Equation

The solutions of  $ax^2 + bx + c = 0$

where  $a \neq 0$ , are given by

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Sine Rule  $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$

Cosine Rule  $a^2 = b^2 + c^2 - 2bc \cos A$

Area of triangle =  $\frac{1}{2}ab \sin C$



Answer ALL TWENTY FIVE questions.

You must NOT use a calculator.

1. The sketch shows the coordinates of the endpoints of the line  $AB$ .

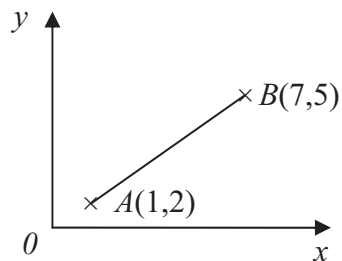


Diagram NOT accurately drawn

Work out the coordinates of the midpoint of the line  $AB$ .

- |                          |                          |                                |                          |                          |
|--------------------------|--------------------------|--------------------------------|--------------------------|--------------------------|
| $(4, 3\frac{1}{2})$      | $(3, 3)$                 | $(3\frac{1}{2}, 2\frac{1}{2})$ | $(2, 3\frac{1}{2})$      | $(3, 1\frac{1}{2})$      |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>       | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>A</b>                 | <b>B</b>                 | <b>C</b>                       | <b>D</b>                 | <b>E</b>                 |

- 2.

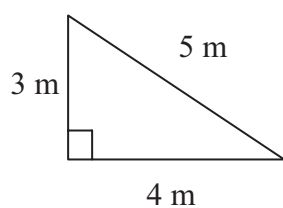


Diagram NOT accurately drawn

Work out the area of this triangle.

- |                          |                            |                          |                          |                          |
|--------------------------|----------------------------|--------------------------|--------------------------|--------------------------|
| $6 \text{ m}^2$          | $7\frac{1}{2} \text{ m}^2$ | $7 \text{ m}^2$          | $12 \text{ m}^2$         | $60 \text{ m}^2$         |
| <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>A</b>                 | <b>B</b>                   | <b>C</b>                 | <b>D</b>                 | <b>E</b>                 |

3. Work out  $1572 \div 0.3$

- |                          |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 5.24                     | 52.4                     | 524                      | 5240                     | 52400                    |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>A</b>                 | <b>B</b>                 | <b>C</b>                 | <b>D</b>                 | <b>E</b>                 |



4. Here is an arithmetic sequence.

1      4      7      10      13

Work out the expression, in terms of  $n$ , for the  $n$ th term of the sequence.

- |                          |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| $3n + 2$                 | $2n - 3$                 | $3n$                     | $3n - 2$                 | $2n$                     |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>A</b>                 | <b>B</b>                 | <b>C</b>                 | <b>D</b>                 | <b>E</b>                 |

5. Work out the Highest Common Factor (HCF) of 30 and 72.

- |                          |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 2                        | 3                        | 6                        | 30                       | 360                      |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>A</b>                 | <b>B</b>                 | <b>C</b>                 | <b>D</b>                 | <b>E</b>                 |

6. Simplify  $4a + 3c - a - 4c$

- |                          |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| $3a + c$                 | $5a + 7c$                | $5a - c$                 | $3a + 7c$                | $3a - c$                 |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>A</b>                 | <b>B</b>                 | <b>C</b>                 | <b>D</b>                 | <b>E</b>                 |

7. Factorise  $x^2 - 5x$

- |                          |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| $4x$                     | $x(x - 5)$               | $5x^2$                   | $x(2 - 5)$               | $x^2(x - 5)$             |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>A</b>                 | <b>B</b>                 | <b>C</b>                 | <b>D</b>                 | <b>E</b>                 |

8. Sally drives a distance of 100 miles.  
It takes  $2\frac{1}{2}$  hours for Sally to drive this distance.

Work out her average speed.

- |                          |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 25 miles<br>per hour     | 30 miles<br>per hour     | 40 miles<br>per hour     | 60 miles<br>per hour     | 250 miles<br>per hour    |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>A</b>                 | <b>B</b>                 | <b>C</b>                 | <b>D</b>                 | <b>E</b>                 |



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9.

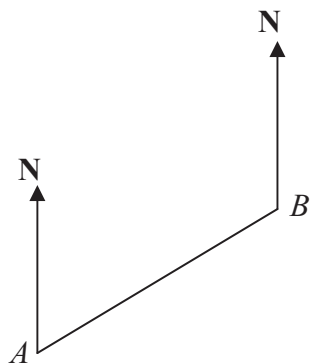


Diagram **NOT**  
accurately drawn

The bearing of  $B$  from  $A$  is  $035^\circ$   
Work out the bearing of  $A$  from  $B$ .

- |                          |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| $035^\circ$              | $055^\circ$              | $145^\circ$              | $215^\circ$              | $325^\circ$              |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>A</b>                 | <b>B</b>                 | <b>C</b>                 | <b>D</b>                 | <b>E</b>                 |

10. Given that

$$67 \times 329 = 22043,$$

What is  $0.67 \times 32.9$ ?

- |                          |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 2.2043                   | 22.043                   | 220.43                   | 2204.3                   | 22043                    |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>A</b>                 | <b>B</b>                 | <b>C</b>                 | <b>D</b>                 | <b>E</b>                 |

11. Expand and simplify fully

$$(x + 4)(x + 7)$$

- |                          |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| $x^2 + 28$               | $x^2 + 28x + 28$         | $x^2 + 11x + 11$         | $x^2 + 4x + 7x + 11$     | $x^2 + 11x + 28$         |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>A</b>                 | <b>B</b>                 | <b>C</b>                 | <b>D</b>                 | <b>E</b>                 |

12. The length of a piece of wood has been measured as 15.3 cm, to the nearest mm.

What is the minimum length the wood could be?

- |                          |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 15.4 cm                  | 15.349 cm                | 15.35 cm                 | 15.25 cm                 | 15.349999 cm             |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>A</b>                 | <b>B</b>                 | <b>C</b>                 | <b>D</b>                 | <b>E</b>                 |



M 3 1 0 8 8 A 0 5 0 8

13. Express 300 as a product of its prime factors.

- |                          |                          |                          |                           |                          |
|--------------------------|--------------------------|--------------------------|---------------------------|--------------------------|
| $3 \times 100$           | $2^2 \times 3 \times 25$ | $4 \times 3 \times 25$   | $2^2 \times 3 \times 5^2$ | $4 \times 3 \times 5^2$  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>  | <input type="checkbox"/> |
| <b>A</b>                 | <b>B</b>                 | <b>C</b>                 | <b>D</b>                  | <b>E</b>                 |

14. Expand and simplify

$$(x + 3y)(x - 4y)$$

- |                          |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| $x^2 + xy - 7y^2$        | $x^2 - xy - 12y^2$       | $x + xy - 12y$           | $x^2 + xy - 12y^2$       | $x^2 - 7xy - 12y^2$      |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>A</b>                 | <b>B</b>                 | <b>C</b>                 | <b>D</b>                 | <b>E</b>                 |

15. Work out

$$2\frac{1}{2} \times 3\frac{1}{5}$$

- |                          |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 8                        | $6\frac{1}{10}$          | $5\frac{1}{7}$           | $6\frac{2}{7}$           | $\frac{75}{10}$          |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>A</b>                 | <b>B</b>                 | <b>C</b>                 | <b>D</b>                 | <b>E</b>                 |

16. The diagram shows a cuboid of dimensions 10 cm × 8 cm × 5 cm.

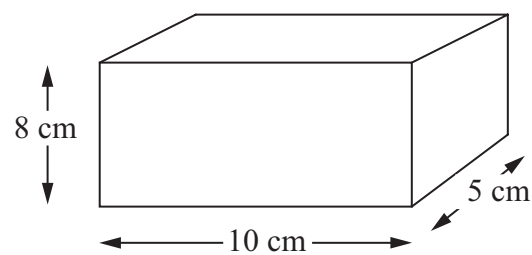


Diagram **NOT** accurately drawn

Work out the total surface area of the cuboid.

- |                          |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| $170 \text{ cm}^2$       | $260 \text{ cm}^2$       | $290 \text{ cm}^2$       | $340 \text{ cm}^2$       | $400 \text{ cm}^2$       |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>A</b>                 | <b>B</b>                 | <b>C</b>                 | <b>D</b>                 | <b>E</b>                 |



Leave  
blank

17. Write the number 0.00342 in standard form notation.

- |                          |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| $342 \times 10^3$        | $3.4 \times 10^{-3}$     | $342 \times 10^{-3}$     | $3.42 \times 10^{-3}$    | $3.42 \times 10^{-2}$    |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>A</b>                 | <b>B</b>                 | <b>C</b>                 | <b>D</b>                 | <b>E</b>                 |

18. Factorise  $x^2 - 25x$

- |                          |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| $(x - 5)^2$              | $x(x^2 - 25)$            | $x(x^2 - 5)$             | $x(x - 25)$              | $(x - 5)(x + 5)$         |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>A</b>                 | <b>B</b>                 | <b>C</b>                 | <b>D</b>                 | <b>E</b>                 |

19. Work out

$$1\frac{3}{4} + 2\frac{2}{3}$$

- |                          |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| $4\frac{5}{12}$          | $3\frac{5}{7}$           | $3\frac{6}{12}$          | $3\frac{5}{12}$          | $4\frac{5}{7}$           |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>A</b>                 | <b>B</b>                 | <b>C</b>                 | <b>D</b>                 | <b>E</b>                 |

20. Factorise completely  $6x^2 + 8xy$

- |                          |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| $2(3x^2 + 4xy)$          | $2x^2(x + 4y)$           | $x(6x + 8y)$             | $2x(3x + 4y)$            | $6x(x^2 + 8y)$           |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>A</b>                 | <b>B</b>                 | <b>C</b>                 | <b>D</b>                 | <b>E</b>                 |

21. A tank contains 480 litres of water.

A tap is opened, and water flows out of the tank at the rate of 0.2 litres per second.

How long will it take to empty the tank?

- |                          |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 40 minutes               | 96 minutes               | 960 minutes              | 2400 minutes             | 4800 minutes             |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>A</b>                 | <b>B</b>                 | <b>C</b>                 | <b>D</b>                 | <b>E</b>                 |

22. Simplify  $(2a^2b)^3$

- |                          |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| $6a^5b$                  | $6a^6b^3$                | $8a^6b^3$                | $6a^5b^3$                | $8a^5b^3$                |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <b>A</b>                 | <b>B</b>                 | <b>C</b>                 | <b>D</b>                 | <b>E</b>                 |



23. Expand  $(2x + 5y)(3x - 2y)$

$5x^2 + 8xy - 7y^2$

**A**

$6x^2 + 12xy - 10y^2$

**B**

$5x^2 + 4xy - 7y^2$

**C**

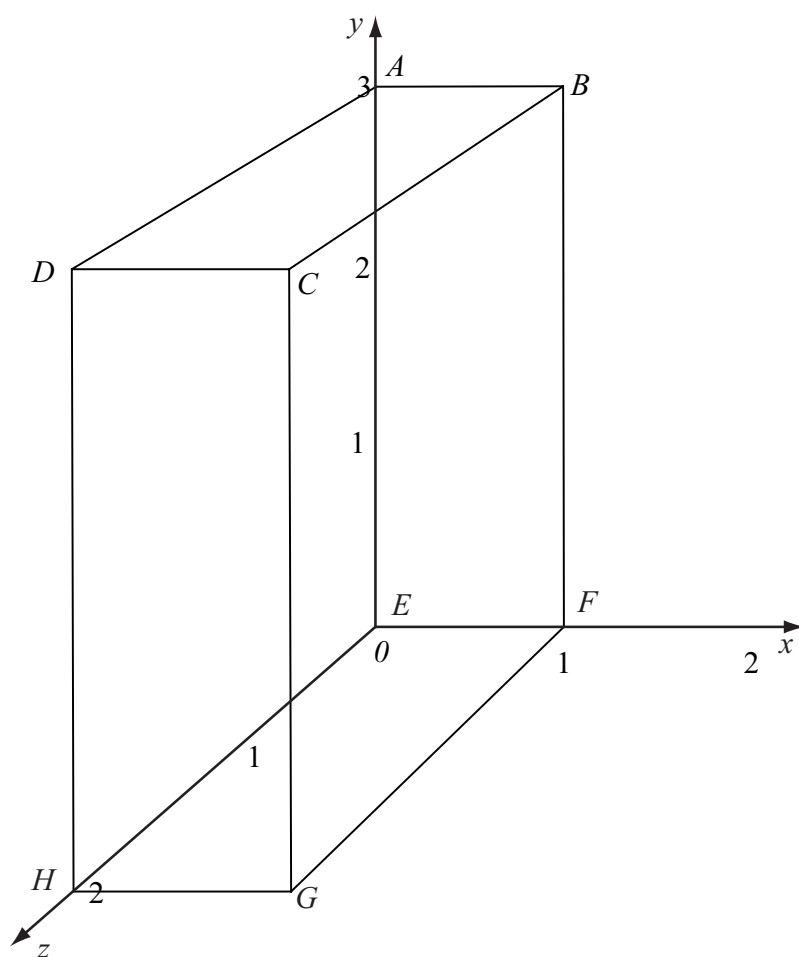
$6x^2 - 4xy - 10y^2$

**D**

$6x^2 + 11xy - 10y^2$

**E**

24.



Work out the coordinates of the midpoint of the line  $HB$ .

$(1, 1, 1)$

**A**

$(1, 2, 1)$

**B**

$(1, 2, \frac{1}{2})$

**C**

$(\frac{1}{2}, 1\frac{1}{2}, \frac{1}{2})$

**D**

$(\frac{1}{2}, 1\frac{1}{2}, 1)$

**E**

25. Factorise  $6x^2 + x - 12$

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

**A**

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

**B**

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

**C**

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

**D**

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

**E**

**TOTAL FOR PAPER: 25 MARKS**

**END**

