Surname	Initial(s)
Signature	

Paper Reference(s)

5382H/08

Edexcel GCSE

Mathematics (Modular) – 2381

Paper 8 (Non-Calculator)

Higher Tier

Unit 2 Stage 1

Monday 3 March 2008 – Afternoon

Time: 30 minutes

Materials required for examination
Multiple Choice Answer Sheet
Ruler graduated in centimetres and millimetres, protractor, compasses, HB pencil, eraser.

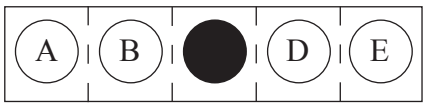
Items included with question papers
Nil

Instructions to Candidates

Use a HB pencil. Do not open this booklet until you are told to do so.

Before the test begins:
Check that the answer sheet is for the correct test and that it contains your candidate details.

How to answer the test:
For each question, choose the right answer, A, B, C, D or E and mark it in HB pencil on the answer sheet.
For example, the answer C would be marked as shown.



Mark only **one** answer for each question. If you change your mind about an answer, rub out the first mark **completely**, then mark your new answer.

Answer **all** the questions.
Do any necessary calculations and rough work in this booklet. **Calculators must not be used.**
You must not take this booklet or the answer sheet out of the examination room.

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.

Advice to Candidates

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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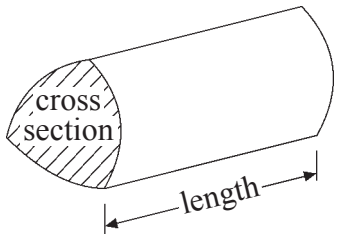
GCSE Mathematics

Formulae: Higher Tier

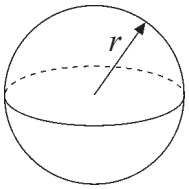
You must not write on this formulae page.
Anything you write on this formulae page will gain NO credit.

Volume of a prism = area of cross section × length



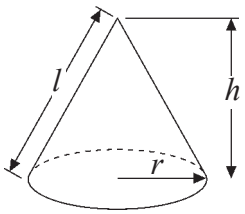
Volume of sphere $= \frac{4}{3}\pi r^3$

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

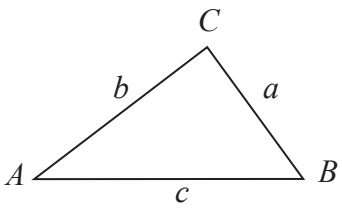


Volume of cone $= \frac{1}{3}\pi r^2 h$

Curved surface area of cone $= \pi rl$



In any triangle ABC



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 $= \frac{1}{2}ab\sin C$

The Quadratic Equation

The solutions of $ax^2 + bx + c = 0$ where $a \neq 0$, are given by

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

Answer ALL TWENTY FIVE questions using the answer sheet.

You must NOT use a calculator.

1. 487 is divided by 23

What is the remainder?

16	4	3	6	0
A	**B**	**C**	**D**	**E**

2. The Highest Common Factor (HCF) of 16 and 36 is

4	144	576	8	72
A	**B**	**C**	**D**	**E**

3. The diagram shows a rectangular floor.
The length of the floor is 3 m.
The width of the floor is 2 m.

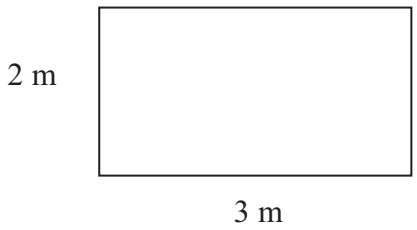


Diagram **NOT** accurately drawn

Jane is going to cover the floor with tiles.
Each tile is a square of side 50 cm.
Jane wants to cover the floor completely.

How many tiles does she need?

24	12	10	20	6
A	**B**	**C**	**D**	**E**

4. Simplify $3a + 4c - a - 5c$

$2a - c$	$4a + 9c$	$2a + c$	$4a + c$	$2a + 9c$
A	**B**	**C**	**D**	**E**

5. Factorise $y^2 + 4y$

$5y$	$y(y + 4)$	$4y^3$	$y(y + 4y)$	$y + 4$
A	**B**	**C**	**D**	**E**

6.

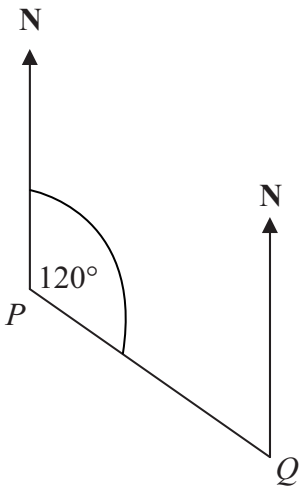


Diagram **NOT** accurately drawn

The bearing of Q from P is 120°.

What is the bearing of P from Q?

240°	120°	030°	060°	300°
A	**B**	**C**	**D**	**E**

7. Peter cycles 20 miles in $2\frac{1}{2}$ hours.

What is his average speed in miles per hour?

5 miles per hour	8 miles per hour	10 miles per hour
A	**B**	**C**

12 miles per hour	50 miles per hour
D	**E**

8. Here are the first five terms of an arithmetic sequence.

2 5 8 11 14

What is the expression, in terms of n, for the nth term of the sequence?

$n + 3$	$3n$	$n - 3$	$3n + 1$	$3n - 1$
A	**B**	**C**	**D**	**E**

9. Given that $37 \times 234 = 8658$

what is the value of 3.7×23.4?

865.8	86.58	8.658	0.8658	86580
A	**B**	**C**	**D**	**E**

10.

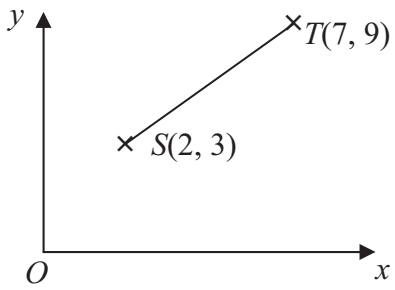


Diagram **NOT** accurately drawn

Which are the coordinates of the midpoint of the line ST?

(3½, 4½)	(4½, 6)	(5, 6)	(6, 2½)	(6, 4½)
A	**B**	**C**	**D**	**E**

11.

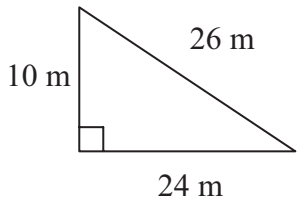


Diagram **NOT** accurately drawn

What is the area of this triangle?

240 m^2	65 m^2	120 m^2	60 m^2	6240 m^2
A	**B**	**C**	**D**	**E**

12. What is 225 written as a product of its prime factors?

9×25	$3^3 \times 5^3$	5×45	$3 \times 5 \times 15$	$3 \times 3 \times 5 \times 5$
A	**B**	**C**	**D**	**E**

13. Which is the best estimate for the value of $\dfrac{410 \times 6.9}{0.23}$?

14000	7000	1230	1400	2800
A	**B**	**C**	**D**	**E**

14. $(x + 2)(x - 4) =$

x^2+2x-8	x^2+6x-8	x^2+2x-2	x^2+2x+2	x^2-2x-8
A	**B**	**C**	**D**	**E**

15. Factorise $x^2 - x - 6$

$(x-3)(x-2)$	$(x+1)(x-6)$	$(x+3)(x-2)$	$(x-3)(x+2)$	$(x-1)(x-5)$
A	**B**	**C**	**D**	**E**

16.

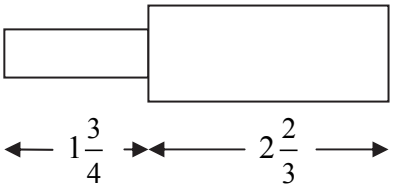


Diagram **NOT** accurately drawn

A machine tool is made from two parts.

One part has a length of $1\frac{3}{4}$ inches.

The other part has a length of $2\frac{2}{3}$ inches.

What is the total length, in inches, of the machine tool?

$3\frac{5}{7}$	$4\frac{5}{12}$	$4\frac{2}{3}$	$\frac{15}{7}$	$3\frac{5}{12}$
A	**B**	**C**	**D**	**E**

17. The Lowest Common Multiple (LCM) of 30 and 48 is

720	8	240	6	1440
A	**B**	**C**	**D**	**E**

18. The length of a piece of wood is 123 mm, correct to the nearest mm.

What is the greatest length that the piece of wood could be?

123.4 mm	122.5 mm	123.48 mm	124 mm	123.5 mm
A	**B**	**C**	**D**	**E**

19. Factorise completely $6x^2 - 9xy$

$3x(2 - 3y)$	$3x(2x - 3y)$	$3(x^2 - 3xy)$	$x(6x - 9y)$	$2x - 3y$
A	**B**	**C**	**D**	**E**

20. What is the number 23 500 in standard form?

2.35×10^{2}	2.3×10^{4}	2.35×10^{4}	2.35×10^{-4}	235×10^{4}
A	**B**	**C**	**D**	**E**

21. F and G are two points on a 3-D coordinate grid.
Point F is $(2, 3, 3)$.
Point G is $(6, -1, -4)$.

Which are the coordinates of the midpoint of the line segment FG?

$(4, 2, 3\frac{1}{2})$	$(2, 1, \frac{1}{2})$	$(4, 1, -\frac{1}{2})$	$(4, 2, \frac{1}{2})$	$(4, 1, \frac{1}{2})$
A	**B**	**C**	**D**	**E**

22. Expand and simplify $(3x - 2y)^2$

$9x^2-4y^2$	$9x^2+4y^2$	$9x^2-12xy+4y$	$9x^2+12xy-4y^2$	$9x^2-12xy+4y^2$
A	**B**	**C**	**D**	**E**

23. $(2x + 1)(x - 3) =$

$2x^2+5x-3$	$2x^2-2x-3$	$2x^2+2x-3$	$2x^2-5x-3$	$2x^2-5x+3$
A	**B**	**C**	**D**	**E**

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

$(2x-3)(3x+4)$	$(2x-3)(3x-4)$	$(6x-3)(x+4)$	$(2x+3)(3x-4)$	$(6x+3)(x-4)$
A	**B**	**C**	**D**	**E**

25. A tank contained 48 000 cm^3 of salt.
The salt was removed from the tank at a constant rate.
It took 2 hours and 40 minutes to empty the tank completely.

At what rate, in cm^3 per second, was the salt removed from the tank?

5	6	13	36	300
A	**B**	**C**	**D**	**E**

TOTAL FOR PAPER: 25 MARKS

END