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 15 November 2010 – Afternoon

Time: 30 minutes

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

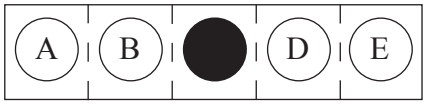
Items included with question papers
Nil

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 12 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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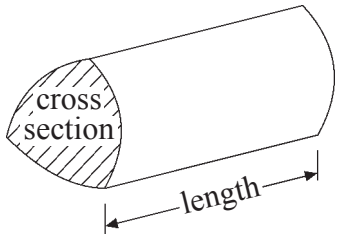
GCSE Mathematics 2381

Formulae: Higher Tier

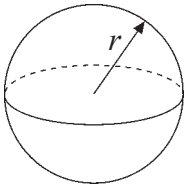
You must not write on this formulae page.
Anything you write on this formulae page will gain NO credit.

Volume of a prism = area of cross section × length



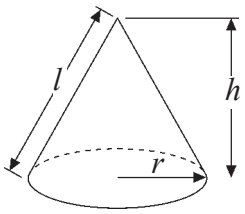
Volume of sphere $= \frac{4}{3}\pi r^3$

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

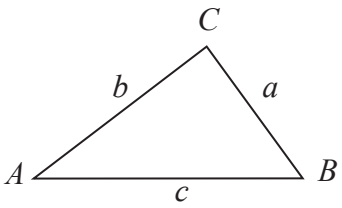


Volume of cone $= \frac{1}{3}\pi r^2 h$

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



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. Simplify $7a + 9b + 4a - 6b$

$11a - 3b$	$11a + 15b$	$3a + 3b$	$11a + 3b$	$11a - 15b$
A	**B**	**C**	**D**	**E**

---

2. $56 \times 31.2 = 1747.2$

The value of 560×312 is

174.72	174720	1747200	17.472	17472
A	**B**	**C**	**D**	**E**

---

3. Factorise $12m + 3$

$3(4m + 3)$	$15m$	$3(4m + 1)$	$3(4m - 1)$	$3m(4m + 1)$
A	**B**	**C**	**D**	**E**

4.

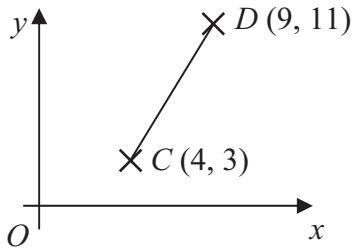


Diagram **NOT** accurately drawn

C is the point (4, 3).
D is the point (9, 11).

The coordinates of the midpoint of CD are

$(7,\ 6\frac{1}{2})$	$(4\frac{1}{2},\ 5\frac{1}{2})$	$(6\frac{1}{2},\ 7)$	(13, 14)	(5, 8)
A	**B**	**C**	**D**	**E**

5.

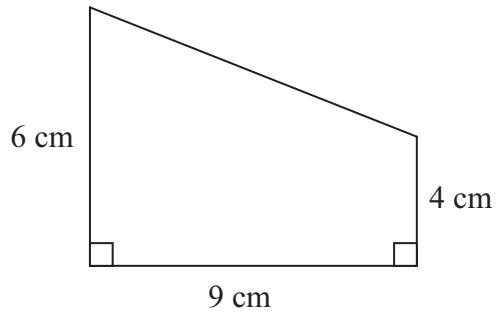


Diagram **NOT** accurately drawn

The area of this shape is

$19\ cm^2$	$54\ cm^2$	$90\ cm^2$	$216\ cm^2$	$45\ cm^2$
A	**B**	**C**	**D**	**E**

---

6. A cinema ticket costs £3.85
A teacher buys 32 of these tickets for a school group.

What is the total cost of the 32 tickets?

£133.20	£123.20	£19.25	£18.25	£113.20
A	**B**	**C**	**D**	**E**

---

7. What is 34 782 when rounded correct to 3 significant figures?

34 800	347	348	34 700	34 780
A	**B**	**C**	**D**	**E**

---

8. The length of a path is 17 m, correct to the nearest metre.

What is the least possible length of the path?

17.5 m	16.6 m	16 m	16.5 m	16.9 m
A	**B**	**C**	**D**	**E**

---

9. A cuboid is shown on a 3-D coordinate grid.

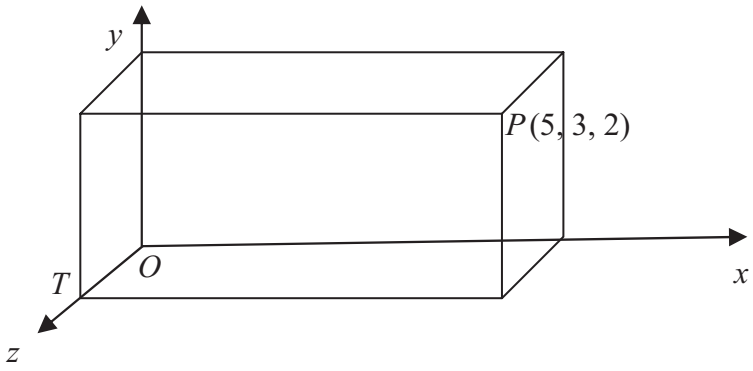


Diagram **NOT** accurately drawn

O, *P* and *T* are vertices of the cuboid.
The point *P* has the coordinates (5, 3, 2).

The coordinates of the point *T* are

(0, 0, 2)	(2, 0, 0)	(0, 3, 0)	(0, 3, 2)	(5, 0, 0)
A	**B**	**C**	**D**	**E**

---

10. $3(2x - 5) + 2(x - 3) =$

$8x - 11$	$8x - 21$	$8x - 9$	$8x - 8$	$8x - 18$
A	**B**	**C**	**D**	**E**

11.

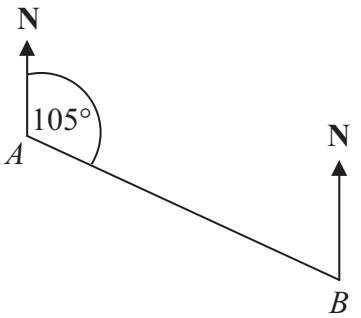


Diagram **NOT** accurately drawn

The bearing of *B* from *A* is 105°

The bearing of *A* from *B* is

255°	105°	285°	015°	075°
A	**B**	**C**	**D**	**E**

---

12. What is 60 written as a product of its prime factors?

A	B	C	D	E
2, 2, 3, 5	$2 \times 2 \times 15$	$1 \times 2 \times 2 \times 3 \times 5$	6×10	$2 \times 2 \times 3 \times 5$

---

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

7 10 13 16 19

What is the expression for the nth term of this sequence?

A	B	C	D	E
$3n$	$n + 3$	$5n + 3$	$3n + 5$	$3n + 4$

---

14. The diagram shows a solid cuboid.

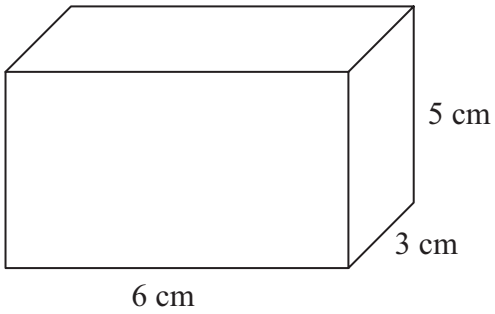


Diagram **NOT** accurately drawn

What is the total surface area of this cuboid?

A	B	C	D	E
66 cm^2	126 cm^2	108 cm^2	90 cm^2	63 cm^2

---

15. $(x + 5)(x + 7) =$

$x^2 + 35$	$x^2 + 12x + 12$	$2x + 12$	$x^2 + 2x + 35$	$x^2 + 12x + 35$
A	**B**	**C**	**D**	**E**

---

16. The Lowest Common Multiple (LCM) of 24 and 40 is

960	8	120	240	4
A	**B**	**C**	**D**	**E**

---

17. Factorise $x^2 + 4x - 12$

$(x + 6)(x - 2)$	$(x + 12)(x - 1)$	$(x + 4)(x - 3)$	$(x - 6)(x - 2)$	$(x - 6)(x + 2)$
A	**B**	**C**	**D**	**E**

---

18. What is 0.087 when written in standard form?

8.7×10^2	8.7×10^{-1}	87×10^2	8.7×10^{-2}	87×10^{-3}
A	**B**	**C**	**D**	**E**

---

19. Factorise completely $30x^2y + 12xy^2$

$6xy(5x + 2y)$	$6xy(5x + 2)$	$3xy(10x + 4y)$	$2xy(15x + 6y)$	$6x(5xy + 2y^2)$
A	**B**	**C**	**D**	**E**

---

20. $1\frac{3}{4} \times 2\frac{2}{3} =$

$2\frac{1}{2}$	$3\frac{2}{3}$	$4\frac{5}{12}$	$4\frac{1}{2}$	$4\frac{2}{3}$
A	**B**	**C**	**D**	**E**

---

21. Expand and simplify $(3a - 7c)^2$

$9a^2 + 49c^2$	$9a^2 - 42ac - 49c^2$	$9a^2 - 42ac + 49c^2$
A	**B**	**C**

$9a^2 - 49c^2$	$9a^2 - 21ac + 49c^2$
D	**E**

---

22. Factorise $3x^2 - 10x + 8$

$(3x + 4)(x + 2)$	$(3x - 2)(x - 4)$	$(3x + 1)(x + 8)$	$(3x - 4)(x - 2)$	$(3x - 8)(x - 1)$
A	**B**	**C**	**D**	**E**

---

23. The diagram shows a cuboid on a 3-D coordinate grid.

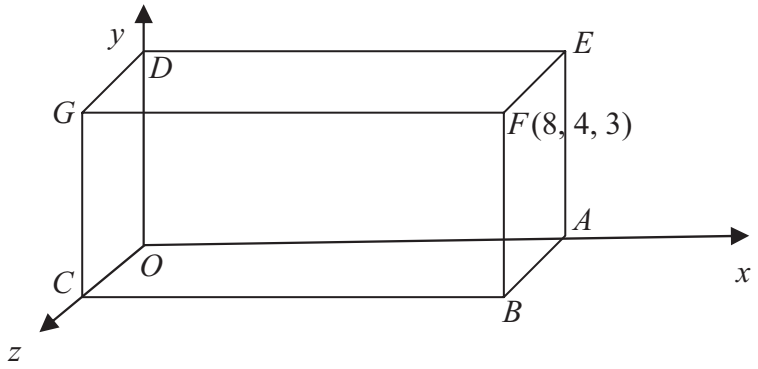


Diagram **NOT** accurately drawn

F has coordinates (8, 4, 3).

What is the area of the face *DEFG*?

14	24	96	32	12
A	**B**	**C**	**D**	**E**

---

24. A factor of $18x^2 - 33x + 5$ is

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

---

25. There are 720 litres of water in a tank.
The water flows out of the tank until the tank is completely empty.
The water flows out of the tank at a constant rate of 0.6 litres per second.

How long, in **minutes**, does it take the tank to empty completely?

1200	432	20	200	120
A	**B**	**C**	**D**	**E**

TOTAL FOR PAPER: 25 MARKS

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