Surname	Initial(s)
Signature	

Paper Reference(s)

5382H/08

Edexcel GCSE

Mathematics (Modular) – 2381

Paper 8 (Non-Calculator)

Higher Tier

Unit 2 Stage 1

Tuesday 3 March 2009 – Afternoon

Time: 30 minutes

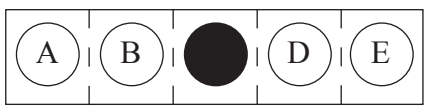
Materials required for examination	**Items included with question papers**
Multiple Choice Answer Sheet Ruler graduated in centimetres and millimetres, protractor, compasses, HB pencil, eraser.	Nil

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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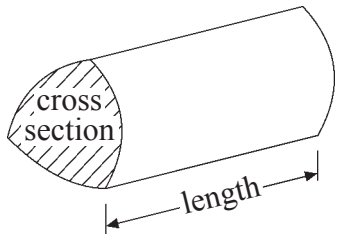
GCSE Mathematics 2381

Formulae: Higher Tier

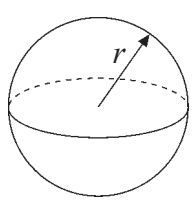
You must not write on this formulae page.
Anything you write on this formulae page will gain NO credit.

Volume of a prism = area of cross section × length



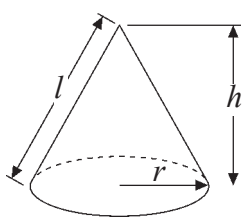
Volume of sphere $= \frac{4}{3}\pi r^3$

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

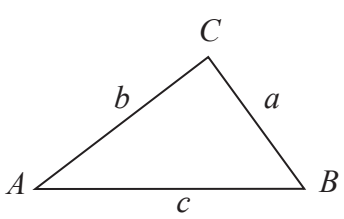


Volume of cone $= \frac{1}{3}\pi r^2 h$

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



In any triangle ABC



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 using the answer sheet.

You must NOT use a calculator.

1. Given that $47 \times 81.6 = 3835.2$

What is the value of 0.47×816?

383.52	38 352	38.352	3835.2	3.8352
A	**B**	**C**	**D**	**E**

---

2. Simplify $5e - 3f + e + 4f$

$6ef$	$5e + f$	$6e - 7f$	$6e - f$	$6e + f$
A	**B**	**C**	**D**	**E**

3.

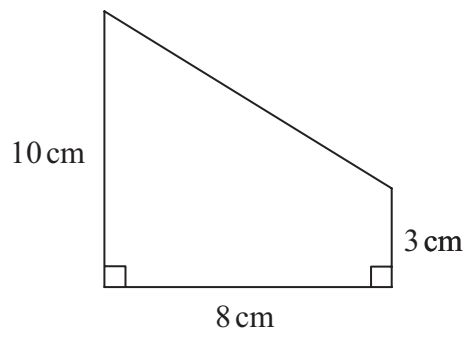


Diagram **NOT** accurately drawn

What is the area of this shape?

21 cm^2	52 cm^2	104 cm^2	80 cm^2	240 cm^2
A	**B**	**C**	**D**	**E**

---

4. Factorise $x^2 + 3x$

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

5.

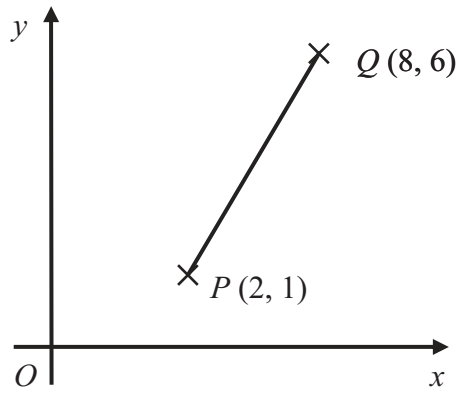


Diagram **NOT** accurately drawn

P is the point (2, 1).
Q is the point (8, 6).

Which are the coordinates of the midpoint of PQ?

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

---

6. What is the Lowest Common Multiple (LCM) of 24 and 60?

2	120	12	1440	240
A	**B**	**C**	**D**	**E**

---

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

3 8 13 18 23

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

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

---

8. $\frac{2}{3} + \frac{1}{5} =$

$\frac{3}{8}$	$\frac{2}{15}$	$\frac{13}{15}$	$\frac{3}{15}$	$\frac{11}{15}$
A	**B**	**C**	**D**	**E**

---

9. The weight of a suitcase is 14 kg correct to the nearest kilogram.

What is the **greatest** possible weight of the suitcase?

14.04 kg	14.05 kg	14.4 kg	14.5 kg	14.9 kg
A	**B**	**C**	**D**	**E**

10.

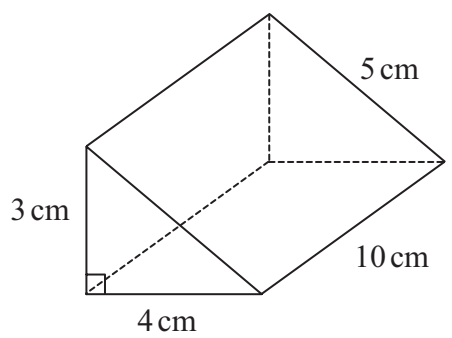


Diagram **NOT** accurately drawn

What is the total surface area of the triangular prism?

60 cm^2	132 cm^2	144 cm^2	120 cm^2	600 cm^2
A	**B**	**C**	**D**	**E**

---

11. Which is the best estimate for the value of $\frac{38.3 \times 51.7}{2.1}$?

750	2000	1000	1500	100
A	**B**	**C**	**D**	**E**

12.

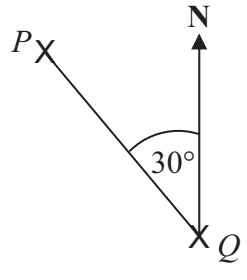


Diagram **NOT** accurately drawn

What is the bearing of P from Q?

030°	120°	150°	210°	330°
A	**B**	**C**	**D**	**E**

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13. There are 80 litres of water in a tank.

Rob turns a tap on.
Water flows from the tank at a rate of 5 litres per minute.

How many minutes will it take for the tank to become completely empty?

5 minutes	400 minutes	20 minutes	16 minutes	80 minutes
A	**B**	**C**	**D**	**E**

---

14. Expand and simplify $(x + 2)(x - 5)$

$x^2 - 10$	$x^2 - 3x - 3$	$x^2 - 3x - 10$	$x^2 + 3x - 10$	$x^2 + 7x - 10$
A	**B**	**C**	**D**	**E**

---

15. What is 210 when written as a product of its prime factors?

2×105	$2, 3, 5, 7$	$2 \times 3 \times 35$	$2 \times 3^2 \times 7$	$2 \times 3 \times 5 \times 7$
A	**B**	**C**	**D**	**E**

---

16. Factorise completely $8x^2y + 12x$

$4x(2xy + 3)$	$20x^3y$	$4x(2xy + 3x)$	$x(4xy + 12)$	$2(4x^2y + 6x)$
A	**B**	**C**	**D**	**E**

---

17. What is 0.0007 when written in standard form?

0.7×10^3	0.7×10^{-3}	7×10^{-3}	7×10^4	7×10^{-4}
A	**B**	**C**	**D**	**E**

---

18. $(x + 3)^2 =$

$x^2 + 9$	$x^2 + 6x + 9$	$2x + 6$	$x^2 + 3x + 9$	$x^2 + 6x + 6$
A	**B**	**C**	**D**	**E**

---

19. Factorise $x^2 + 14x + 24$

$(x + 8)(x + 3)$	$(x + 6)(x + 4)$	$(x + 14)(x + 24)$	$(x + 12)(x + 2)$	$(x + 12)(x + 12)$
A	**B**	**C**	**D**	**E**

---

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

$3\frac{3}{4}$	$2\frac{11}{12}$	$3\frac{2}{12}$	$2\frac{2}{12}$	$3\frac{11}{12}$
A	**B**	**C**	**D**	**E**

---

21. Expand and simplify $(3x + 2y)(4x - 5y)$

$7x^2 - 7xy - 10y^2$	$7x^2 - 7xy - 10y$	$12x^2 - 7xy - 10y$	$12x^2 - 7xy - 10y^2$	$12x^2 + 7xy - 10y^2$
A	**B**	**C**	**D**	**E**

---

22. One factor of $4(x + 3)^2 - 5(x + 3)$ is

$4x + 7$	$4x + 12$	$4x - 12$	$4x - 5$	$5x + 15$
A	**B**	**C**	**D**	**E**

23.

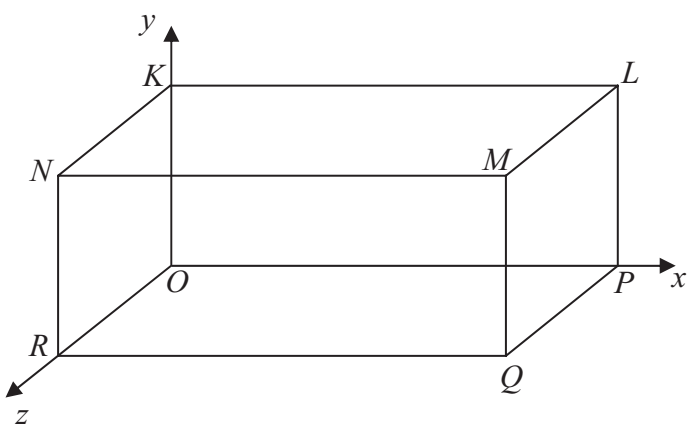

Diagram **NOT** accurately drawn

The diagram shows a cuboid on a 3-D grid.
The coordinates of the vertex M are (6, 2, 3).

What are the coordinates of the midpoint of LN?

$(3, 1, 1\frac{1}{2})$	$(3, 2, 1\frac{1}{2})$	$(3, 2, 3)$	$(3, 1, 3)$	$(6, 1, 1\frac{1}{2})$
A	**B**	**C**	**D**	**E**

---

24. $8x^2 - 29x + 15 =$

$(4x - 3)(2x - 5)$	$(4x - 5)(2x - 3)$	$(8x - 3)(x - 5)$	$(8x - 5)(x - 3)$	$(8x - 15)(x - 1)$
A	**B**	**C**	**D**	**E**

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25. A plane is flying at a speed of 1440 kilometres per hour.

How long, in seconds, will the plane take to fly a distance of 1 kilometre?

0.4 seconds	2.4 seconds	2.5 seconds	4 seconds	24 seconds
A	**B**	**C**	**D**	**E**

TOTAL FOR PAPER: 25 MARKS

END