Surname	Initial(s)
Signature	

Paper Reference(s)

5382H/08

Edexcel GCSE

Mathematics (Modular) – 2381

Paper 8 (Non-Calculator)

Higher Tier

Unit 2 Stage 1

Thursday 17 November 2011 – Afternoon

Time: 30 minutes

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

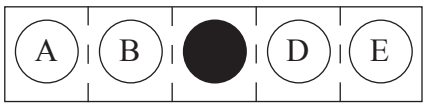
Items included with question papers
Nil

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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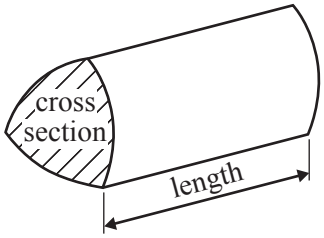
GCSE Mathematics 2381

Formulae: Higher Tier

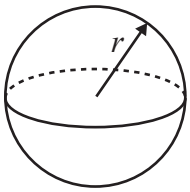
You must not write on this formulae page.
Anything you write on this formulae page will gain NO credit.

Volume of a prism = area of cross section × length



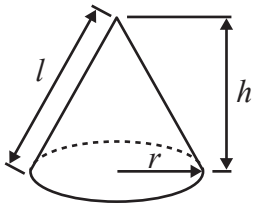
Volume of sphere $= \frac{4}{3}\pi r^3$

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

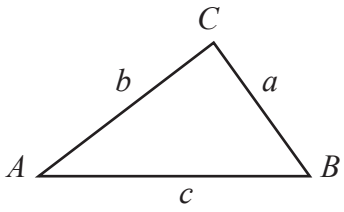


Volume of cone $= \frac{1}{3}\pi r^2 h$

Curved surface area of cone $= \pi rl$



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. What are the coordinates of the midpoint of the line joining (4, 6) to (8, 9)?

(12, 15)	(4, 3)	$(6, 7\frac{1}{2})$	$(2, 1\frac{1}{2})$	$(7\frac{1}{2}, 6)$
A	**B**	**C**	**D**	**E**

2.

Cinema tickets

Adult	£7.50
Child	£3.50
Family (2 adults and 2 children)	£19.50

Sunil wants to buy cinema tickets for 4 adults and 4 children.

It is cheaper for him to buy family tickets.
How much cheaper?

£2.50	£8.50	£5	£17	£6
A	**B**	**C**	**D**	**E**

---

3. What is 90 written as a product of its prime factors?

2 + 3 + 3 + 5	3 × 3 × 10	9 × 10	2 × 3 × 3 × 5	2, 3, 3, 5
A	**B**	**C**	**D**	**E**

4.

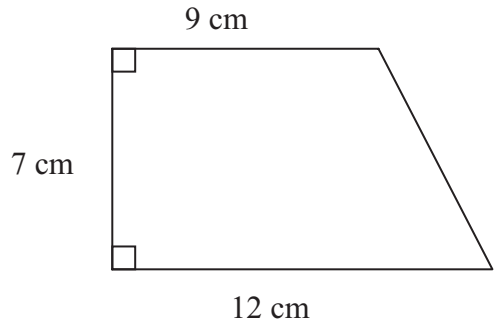


Diagram **NOT** accurately drawn

What is the area of this shape?

84 cm^2	73.5 cm^2	28 cm^2	108 cm^2	756 cm^2
A	**B**	**C**	**D**	**E**

---

5. £3.16 × 54 =

£170.64	£28.44	£160.64	£29.44	£150.00
A	**B**	**C**	**D**	**E**

---

6. Simplify $6m + 2p + 3m - 8p$

$9m - 6p$	$9m + 10p$	$3mp$	$9m + 6p$	$19mp$
A	**B**	**C**	**D**	**E**

---

7. Here are the first 5 terms of an arithmetic sequence.

9 15 21 27 33

Which is the expression for the nth term of the sequence?

$n + 6$	$3n + 6$	$6n$	$6n - 3$	$6n + 3$
A	**B**	**C**	**D**	**E**

---

8. Factorise $y^2 - 5y$

$3y$	$y(y - 5y)$	$y^2(y - 5)$	$y(y - 5)$	$3y^3$
A	**B**	**C**	**D**	**E**

---

9. What is the Lowest Common Multiple (LCM) of 24 and 30?

6	720	2	240	120
A	**B**	**C**	**D**	**E**

---

10. $\frac{7}{12} \quad \frac{14}{15} =$

$\frac{5}{8}$	$\frac{8}{5}$	$\frac{6}{8}$	$\frac{5}{6}$	$\frac{49}{90}$
A	**B**	**C**	**D**	**E**

---

11. The length of a path is 8 metres correct to the nearest metre.

What is the greatest possible length of the path?

8.9 m	7.5 m	8.5 m	8.05 m	8.45 m
A	**B**	**C**	**D**	**E**

---

12. Expand and simplify $4(3x - 2y) - 2(x - 3y)$

$10x - 14y$	$14x + 14y$	$10x - 2y$	$10x - 5y$	$10x + y$
A	**B**	**C**	**D**	**E**

---

13. The diagram shows a solid cuboid.

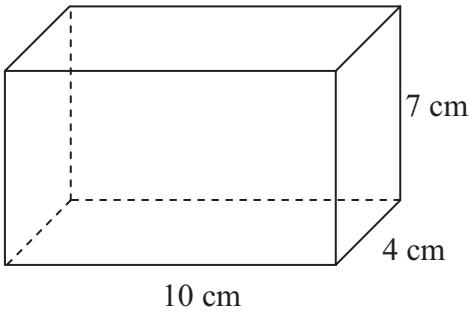


Diagram **NOT** accurately drawn

What is the total **surface area** of the cuboid?

276 cm^2	196 cm^2	236 cm^2	138 cm^2	280 cm^2
A	**B**	**C**	**D**	**E**

14.

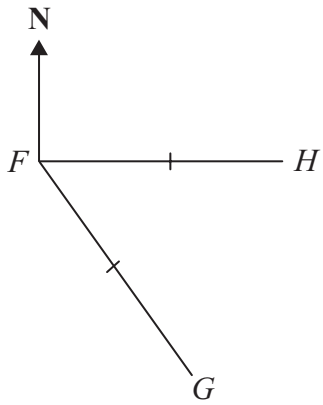


Diagram **NOT** accurately drawn

F, *G* and *H* are 3 points.
FH = *FG*.
H is due East of *F*.
The bearing of *G* from *F* is 140°.
Work out the bearing of *G* from *H*.

065°	230°	205°	140°	155°
A	**B**	**C**	**D**	**E**

---

15. Expand and simplify $(x + 8)(x - 2)$

$x^2 - 16$	$x^2 + 6x - 16$	$x^2 + 10x - 16$	$x^2 + 6x + 16$	$x^2 + 10x + 16$
A	**B**	**C**	**D**	**E**

---

16. What is 408 000 when written in standard form?

408×10^3	4.08×10^{-5}	4×10^5	4.08×10^5	40.8×10^4
A	**B**	**C**	**D**	**E**

---

17. Factorise completely $18x^2y^3 + 12x^3y^3$

$6(3x^2y^3 + 2x^3y^3)$	$6x^2y^3(3 + 2x)$	$6xy(3xy^2 + 2x^2y^2)$	$2x^2y^3(9 + 6x)$	$3x^2y^3(6 + 4x)$
A	**B**	**C**	**D**	**E**

---

18. One of the following statements is false.
Which statement?

A A square is a special type of trapezium.

B A rhombus is a special type of parallelogram.

C A parallelogram is a special type of trapezium.

D A rectangle is a special type of kite.

E A rectangle is a special type of parallelogram.

---

19. Write 3.7×10^{-2} as an ordinary number.

3700	0.0037	370	372	0.037
A	**B**	**C**	**D**	**E**

---

20. $(5x - 3)^2 =$

$10x^2 - 30x + 9$	$25x^2 + 9$	$25x^2 - 15x + 9$	$25x^2 - 9$	$25x^2 - 30x + 9$
A	**B**	**C**	**D**	**E**

---

21. The diagram shows a cuboid on a 3-D grid.

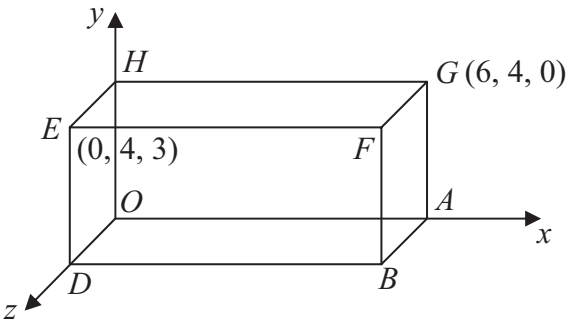


Diagram **NOT** accurately drawn

$G = (6, 4, 0)$
$E = (0, 4, 3)$

What is the area of the face $EFGH$?

12	288	24	72	18
A	**B**	**C**	**D**	**E**

---

22. $(4x - 5)(2x + 7) =$

$8x^2 + 18x - 35$	$8x^2 - 18x + 35$	$8x^2 - 35$	$8x^2 + 9x - 35$	$26x - 35$
A	**B**	**C**	**D**	**E**

---

23. Factorise $49a^2 - 25b^2$

$(49a - b)(a + 25b)$	$(7a - 25b)(7a + b)$	$(7a - 5b)^2$
A	**B**	**C**
$(7a - 5b)(7a + 5b)$	$(a + 5b)(49a - 5b)$	
D	**E**	

---

24. One of the factors of $5x^2 + 17x - 12$ is

$5x + 3$	$x + 3$	$5x - 3$	$x - 4$	$5x - 4$
A	**B**	**C**	**D**	**E**

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25. Kerry travels for $2\frac{1}{2}$ hours at an average speed of 80 km/h.

She stops for 40 minutes.

She then travels 160 km at an average speed of 120 km/h.

Work out Kerry's average speed for her whole journey.

75 km/h	80 km/h	90 km/h	85 km/h	100 km/h
A	**B**	**C**	**D**	**E**

TOTAL FOR PAPER: 25 MARKS

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