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| Centre Number | | | | | | Paper Reference | Surname | Other Names |
| Candidate Number | | | | | | | Candidate Signature | |

1387

Edexcel GCSE

Mathematics A

Paper 3

INTERMEDIATE TIER

Specimen Paper

Time: 2 hours

N0000

For Examiner's
use only

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| | | |
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For Team Leader
use only

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Materials required for the examination

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

Items included with these question papers

Formulae sheets

Instructions to Candidates

In the boxes above, write your centre number, candidate number, the paper reference, your surname and other names and your signature. The paper reference is shown in the top left hand corner.

Answer **all** questions in the spaces provided in this book.

Supplementary answer sheets may be used.

Information for Candidates

The total mark for this paper is 100.

The marks for the various parts of questions are shown in round brackets: e.g. (2).

Tracing paper may be used.

Calculators must not be used.

This question paper has 23 questions. There are 3 blank pages.

Advice to Candidates

Work steadily through the paper.

Do not spend too long on one question.

Show all stages in any calculations.

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

Return at the end to those you have left out.

N0000

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Answer ALL TWENTY ONE questions.

Write down your answers in the spaces provided.

Do NOT use a calculator. You must write down all stages in your working.

1. Work out

(a) 2.56×4.5

NA3a
Grade E

(b) $3.45 \div 2.5$

(3)

NA3a
Grade E

(c) Work out

$\sqrt{3^2 + 4^2}$

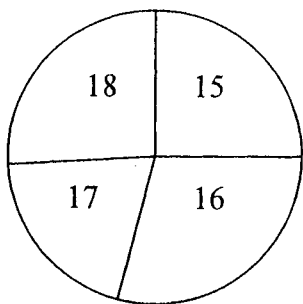
(3)

NA3b
Grade E

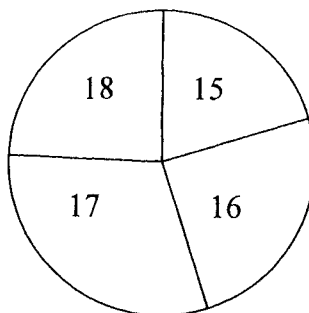
(2)

(Total 8 marks)

2.



Week A



Week B

The ages of everyone attending a youth club disco are recorded.

The results are shown in the pie charts for two separate weeks.

Mark suggests that there were more 15 year olds attending in week A than week B.

- (a) Explain whether you think Mark was correct.
Give a reason for your answer.

HD1c
Grade E

.....

.....

- (b) Suggest how these diagrams could be improved.

(2)

HD1c
Grade E

.....

.....

(2)

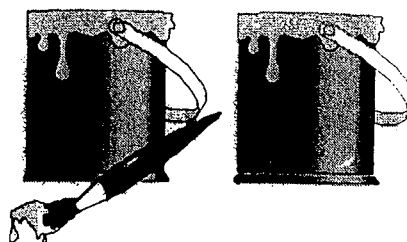
(Total 4 marks)

3. Jim said "I've got three quarters of a tin of paint".

Mary said "I've got four sixths of a tin of paint and my tin of paint is the same size as yours".

Who has got the most paint, Mary or Jim?

Explain your answer.



NA2c
Grade E

.....

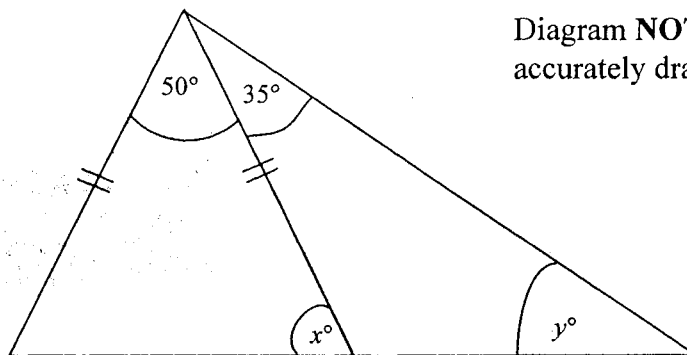
.....

.....

(Total 1 mark)

4.

Diagram **NOT**
accurately drawn



- (a) (i) Work out the value of x° .

$x = \dots\dots\dots$

- (ii) Explain how you worked out your answer.

.....
.....

(2)

- (b) (i) Work out the value of y° .

$y = \dots\dots\dots$

- (ii) Explain how you worked out your answer.

.....
.....

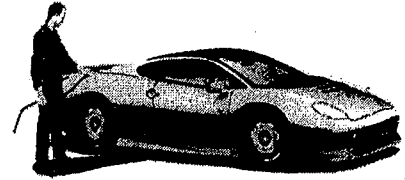
(2)

(Total 4 marks)

5. Marlene and Roy travelled from London to Edinburgh by car.

The distance from London to Edinburgh is 400 miles.

- (a) Estimate the number of kilometres in 400 miles.



SSM4a
Grade E

..... km
(2)

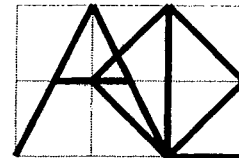
The car used 45 litres of petrol on the journey.

- (b) Estimate the number of gallons in 45 litres.

SSM4a
Grade E

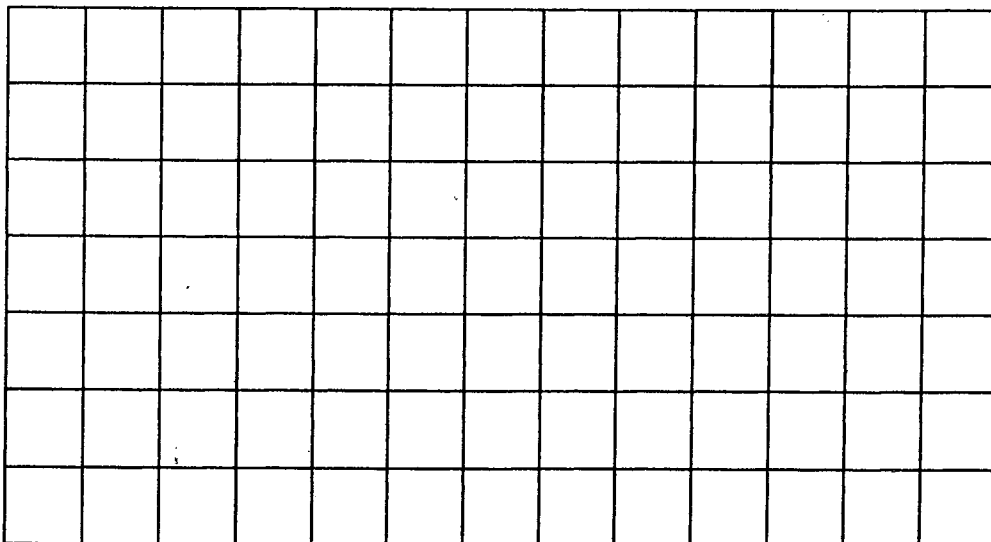
..... gallons
(2)
(Total 4 marks)

6. The AOL postal company has a logo.
The logo is to be made into a watermark which is three times as large.



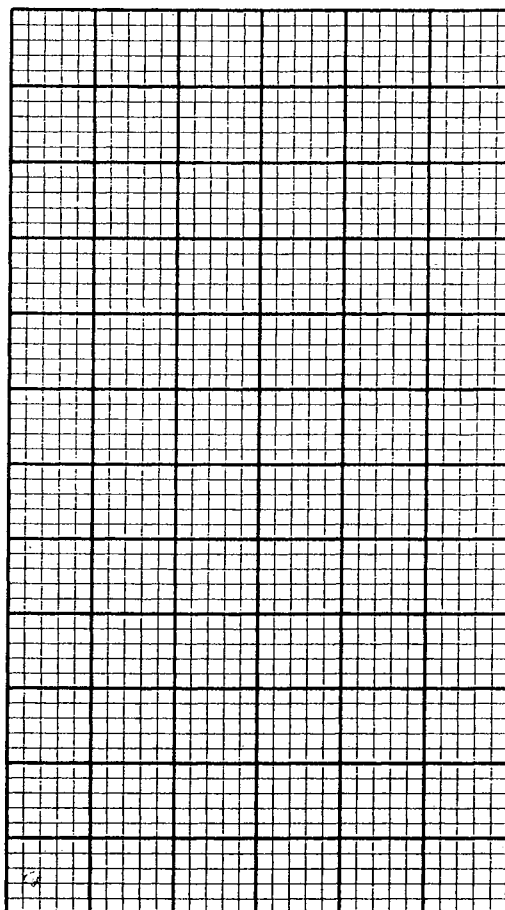
SSM3c
Grade E

Draw your answer on the grid below.



(Total 2 marks)

7. Draw the graph of $y = 2x - 15$ on the grid below.



(Total 3 marks)

8. A maths test has two parts, A and B.

Part A is out of 30.

Part B is out of 50.

Zuleya scored 64 marks for the two parts.

Susie scored 90% in part A and 72% in part B.

Who scored the higher marks?

Explain your answer.

NA3e
Grade D

(Total 4 marks)

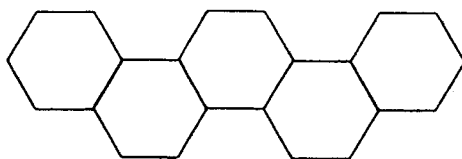
9. A cube has surface area 24 cm^2 .

Work out the volume of the cube.

.....
(Total 4 marks)

10. Farmer Giles makes his sheep pens in the shape of hexagons.

He uses straight hurdles to make the sides of the pens.



26 hurdles will be needed to make a row of 5 pens.

How many hurdles will be needed for a row of n pens?

.....
(Total 2 marks)

11. Bill is carrying out a survey into the flavours of crisps that people like best.

He also wants to divide the results into those from males and those from females.

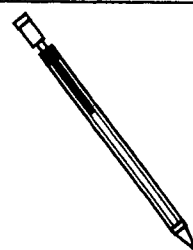
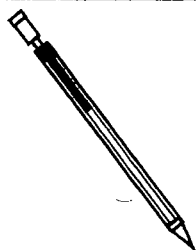
Design a suitable data collection sheet, in the form of a two-way table, that they could use to collect this information.

HD3c
Grade D

(Total 3 marks)

12. The cost of 15 pens is £2.45.

(a) Work out the cost of 9 pens.



£
(2)

NA4a
Grade D

The probability that a pen will be faulty is 0.2.

(b) Work out the probability that a pen picked at random will **not** be faulty.

HD4d
Grade E

.....
(1)

- (c) A pen is of length 10 cm, measured to the nearest centimetre.
A pen case is of length 10.1 cm, measured to the nearest millimetre.
Explain why it might not be possible for the pencil to fit in the pencil case.

SS
Gr

.....

.....

.....

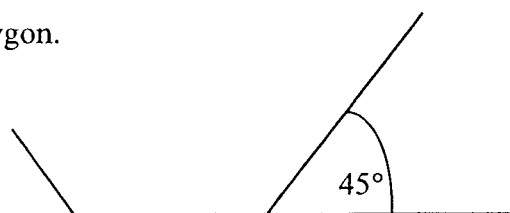
.....

(3)
(Total 6 marks)

13. The exterior angle of a regular polygon is 45° .

- (a) Write down the interior angle of this regular polygon.

SS
Gr



.....[°]
(1)

The exterior angle of a different regular polygon is 30° .

- (b) Work out the number of sides in this regular polygon.

SS
Gr



..... sides
(2)
(Total 3 marks)

14. Here are the equations of 5 straight lines.

They are labelled from A to E.

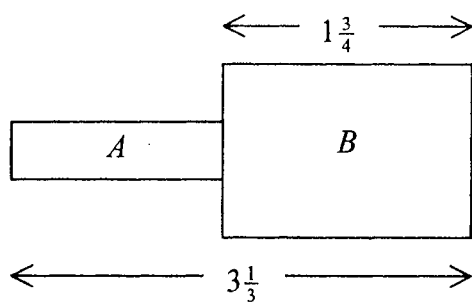
| | | |
|----------|--------------|--|
| A | $y = 2x + 1$ | |
| B | $y = 1 - 2x$ | |
| C | $2y = x - 1$ | |
| D | $2x - y = 1$ | |
| E | $x + 2y = 1$ | |

Put ticks in the table to show the two lines that are parallel.

NA6c
Grade C

(Total 2 marks)

15.



Two rods are fastened together.
 The total length is $3\frac{1}{3}$ inches.
 The length of rod B is $1\frac{3}{4}$ inches.

Find the length of rod A.

..... inches
 (Total 3 marks)

16. (a) (i) Express 72 and 96 as a product of their prime factors.

NA3a
Grade C

$$72 = \dots\dots\dots$$

$$96 = \dots\dots\dots$$

(4)

- (ii) Use your answer to (i) to work out the Highest Common Factor of 72 and 96.

NA2a
Grade C

.....

(2)

$$2.56 \times 720 = 1843.2$$

- (b) write down the answer to

(i) $0.256 \times 72\,000$

.....

(ii) 25.6×0.72

.....

(2)

(Total 8 marks)

NA3a
Grade C

17. Simplify

(a) $7t + 3s - 5t + s$

Expand and simplify

(b) $3(2m + 2) - 2(m - 3)$

Solve the equations

(c) $2q + 7 = -1$

(d) $12a + 2 = 2a - 6$

$q = \dots\dots\dots$
(2)

$a = \dots\dots\dots$
(2)

I
 b

NA
Gr

NA
Gr

NA
Gr

NA
Gr

(e) Solve the equation

$$\frac{2h-1}{3} + \frac{h+6}{2} = \frac{5}{6}$$

NA5f

Grade B

$h = \dots\dots\dots$

(4)

(Total 11 marks)

18. Shade in the region that satisfies all three of these conditions.

- (i) Closer to A than to B ,
- (ii) closer to the line AC than to the line AB ,
- (iii) more than 2 cm from A .

SSN
Gra $\times C$ $A \times$ $\times B$

(Total 4 marks)

19. The manager at "Fixit Exhausts" records the time, to the nearest minute, to repair the exhaust on 20 cars.

Here are his results.

32, 29, 34, 28, 22, 41, 57, 43, 28, 33,

35, 25, 52, 47, 39, 27, 36, 48, 53, 44.

Draw a stem and leaf diagram to show this information.

HD4a
Grade D

(Total 4 marks)

20. (a) Simplify

(i) $t^3 \times t^5$

(ii) $\frac{m^2}{m^5}$

(iii) $\frac{h^2 \times h^3}{h}$

(b) Expand and simplify

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

(ii) $(3x - 2)^2$

(c) Solve the equation

$$x^2 - 3x - 10 = 0$$

(3)
(Total 10 marks)

21. (a) The mass of an atom of Uranium is 4×10^{-25} kg.

Calculate the mass of 3 000 000 atoms of Uranium.
Give your answer in standard form.

NA3h
Grade B

- (b) Evaluate $16^{\frac{1}{2}}$.

.....kg
(2)

NA2b
Grade B

.....
(1)
(Total 3 marks)

22.

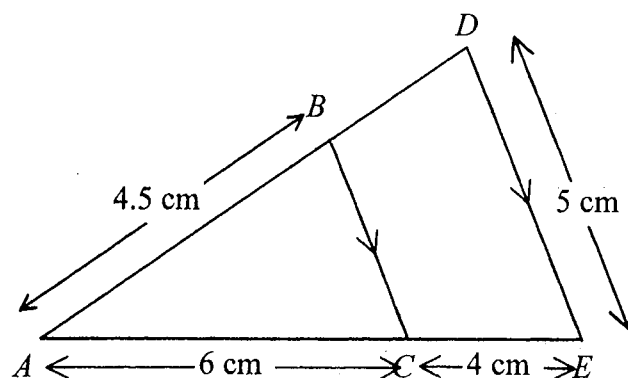


Diagram NOT
accurately drawn

(a) Work out the length of AD .

SSM
Gra

..... cm
(2)

(b) Work out the length of BC .

SSM
Gra

..... cm
(2)
(Total 4 marks)

23. There are 12 boys and 15 girls in a class.

In a test the mean mark for the boys was n .

In the same test the mean mark for the girls was m .

Find an expression for the mean mark of the whole class of 27 students.

HD4e
Grade B

.....
(Total 3 marks)

TOTAL FOR PAPER: 100 MARKS