Please write clearly in block capitals.

Centre number | | | | | | Candidate number | | | | |

Surname _____

Forename(s) _____

Candidate signature _____

GCSE
MATHEMATICS

F

Foundation Tier Paper 2 Calculator

Monday 6 November 2017 Morning Time allowed: 1 hour 30 minutes

Materials

For this paper you must have:
- a calculator
- mathematical instruments.

Instructions
- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information
- The marks for questions are shown in brackets.
- The maximum mark for this paper is 80.
- You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer book.

Advice
- In all calculations, show clearly how you work out your answer.

For Examiner's Use	
Pages	Mark
2–3	
4–5	
6–7	
8–9	
10–11	
12–13	
14–15	
16–17	
18–19	
20–21	
22–23	
24–25	
TOTAL	

Do not write outside the box

Answer **all** questions in the spaces provided

1 How many minutes are there in $2\frac{1}{4}$ hours?

Circle your answer.

[1 mark]

135 145 215 225

2 Which of these numbers is **half** of a square number?

Circle your answer.

[1 mark]

1 2 3 4

3 Circle the value of the digit 3 in the number 17.03

[1 mark]

$\frac{3}{10}$ $\frac{1}{30}$ $\frac{3}{100}$ $\frac{1}{300}$

Do not write outside the box

4 The value of A is double the value of B.

Circle the correct formula.

[1 mark]

$A = B + 2$ $\quad$ $A = 2B$ $\quad$ $A = \frac{B}{2}$ $\quad$ $A = B^2$

5 (a) Simplify $y \times y$

[1 mark]

Answer _____

5 (b) Simplify $5a + 2 - a + 9$

[2 marks]

_____

_____

Answer _____

Turn over for the next question

7

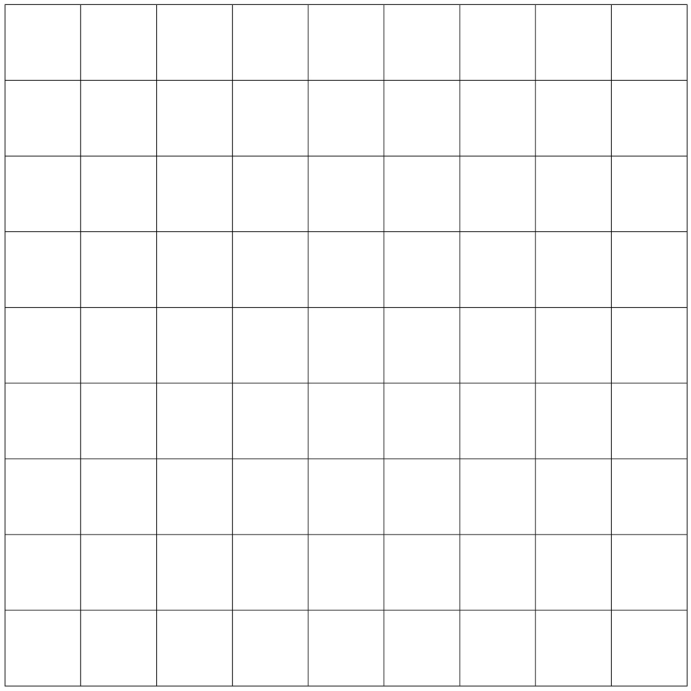
Do not write outside the box

6 The table shows information about the birds in a garden.

Bird	Number
Robin	2
Sparrow	5
Wren	3
Lark	1

Draw a bar chart to show the information.

[3 marks]



Do not write outside the box

7 Eve has these coins.

Ola has these coins.

Eve gives **three** of her coins to Ola.

Now, Ola has the same amount of money as Eve.

Which coins does Eve give to Ola?

[3 marks]

Answer _____ , _____ , _____

Turn over for the next question

6

Do not write outside the box

8 A dry cleaning shop has the following offers.

Suit

Normal price £12.50
1st suit normal price
2nd suit half price

Dress

Normal price £9.75
Three for the price of two

Work out the **total** price for 2 suits and 6 dresses.

[4 marks]

Answer £ _____

Do not write outside the box

9 Karl has twin sisters.

The sum of the ages of Karl and his twin sisters is 39

In 4 years' time the twins will be 18

How old will Karl be in 4 years' time?

[3 marks]

Answer _____

Turn over for the next question

7

Do not write outside the box

10 One of the angles in a triangle is 60°

Tick a box for each statement.

	Must be true	**Cannot be true**	**Might be true**
The triangle is equilateral			
The triangle has at least one other acute angle			
The triangle is right-angled			
The other two angles are each less than 60°			

[4 marks]

Do not write outside the box

11 Which of these numbers has **exactly** two factors?

Circle your answer.

[1 mark]

6 7 8 9

12 Work out $\sqrt{7.5^2 + 18^2}$

Circle your answer.

[1 mark]

19.5 25.5 331.5 380.25

13 (a) Use your calculator to work out the exact value of $\dfrac{18\ 953 \times 437}{11}$

[1 mark]

Answer _____

13 (b) Use approximations to 1 significant figure to check if your answer to part (a) is sensible.

[3 marks]

_____

_____

_____

_____

_____

10

Turn over ►

Do not write outside the box

14 Chris sells lawnmowers.

The table shows the number he sold each quarter for three years.

	Quarter 1	**Quarter 2**	**Quarter 3**	**Quarter 4**
2016	17	64	50	5
2015	9	72	61	1
2014	19	58	53	2

14 (a) In which year did he sell the most lawnmowers?

You **must** show your working.

[2 marks]

Answer _____

14 (b) He uses the table to decide the number of lawnmowers to stock each quarter.

At the **start** of which quarter should Chris stock the most lawnmowers?
Circle your answer.

[1 mark]

Quarter 1 Quarter 2 Quarter 3 Quarter 4

Do not write outside the box

15 In a test,

Section A has 80 marks

Section B has 120 marks.

Riya scores

55% in Section A

70% in Section B.

To pass, Riya needs to score 65% of the **total** marks.

Does she pass?

You **must** show your working.

[4 marks]

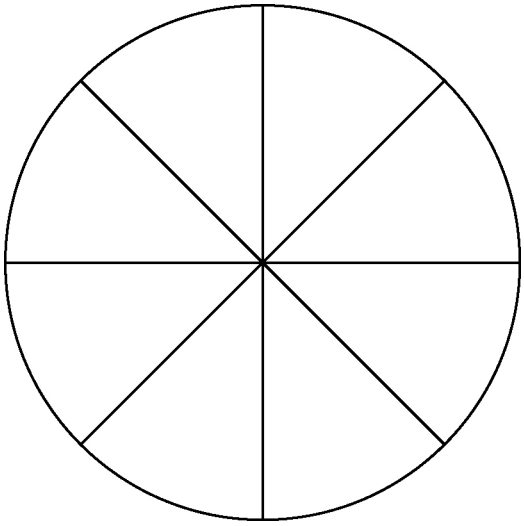
Answer _____

7

Turn over ►

Do not write outside the box

16 A wheel is made of a circular rim and 8 spokes as shown.



Not drawn accurately

The length of each spoke is 37 cm

Work out the **total** length of the rim and spokes.

[3 marks]

Answer _____ cm

Do not write outside the box

17 Here is a formula to convert degrees Celsius (°C) to degrees Fahrenheit (°F).

$$F = 1.8C + 32$$

F is the number of degrees Fahrenheit

C is the number of degrees Celsius

17 (a) Show that –40°C = –40°F

[2 marks]

17 (b) The temperature is –15°C

Nick says,

"Because the temperature is negative in Celsius, it **must** be negative in Fahrenheit."

Is he correct?

You **must** show your working.

[1 mark]

Answer _____

6

Do not write outside the box

18 Here are five cards.

1	5	7	9	11

One of the cards is removed.

The mean of the numbers on the remaining four cards is 6

Which card was removed?

You **must** show your working.

[3 marks]

Answer _____

Do not write outside the box

19 (a) Divide 120 in the ratio 1 : 4

[2 marks]

Answer _____ : _____

19 (b) Write the ratio 7 : 4 in the form n : 1

[1 mark]

Answer _____ : _____

Turn over for the next question

6

Do not write outside the box

20 In 2015, Han was paid £1350 per month.

In 2016, he

had a 2% increase in his monthly pay

worked 37.5 hours per week

worked for 47 weeks.

Work out Han's average pay **per hour** for 2016

[5 marks]

Answer £ _____

Do not write outside the box

21 An experiment is carried out 200 times.

The possible outcomes are K, L and M.

21 (a) Complete the table.

[2 marks]

Outcome	K	L	M
Frequency	84	54	
Relative frequency	0.42		

21 (b) Altogether, the experiment is carried out 500 times.

How many times would you expect the outcome to be K?

[2 marks]

Answer _____

Turn over for the next question

9

Do not write outside the box

22 The table shows information about the UK and Germany.

	Population	**Area (square miles)**
UK	64 000 000	95 000
Germany	82 000 000	140 000

Population density = $\frac{\text{population}}{\text{area}}$

Compare the population densities of the UK and Germany.

[3 marks]

23 Which **one** of the following is discrete data?

Circle your answer.

[1 mark]

Mass of a television

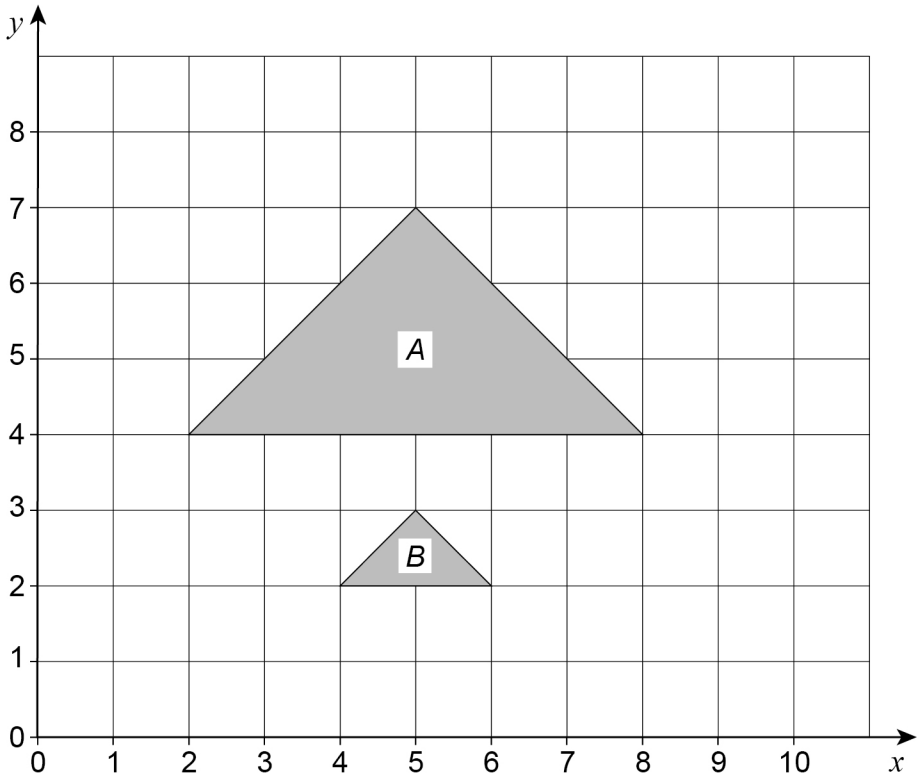
Time taken to deliver a television

Height of a television mast

Number of televisions sold

Do not write outside the box

24 Describe fully the **single** transformation that maps triangle *A* to triangle *B*.



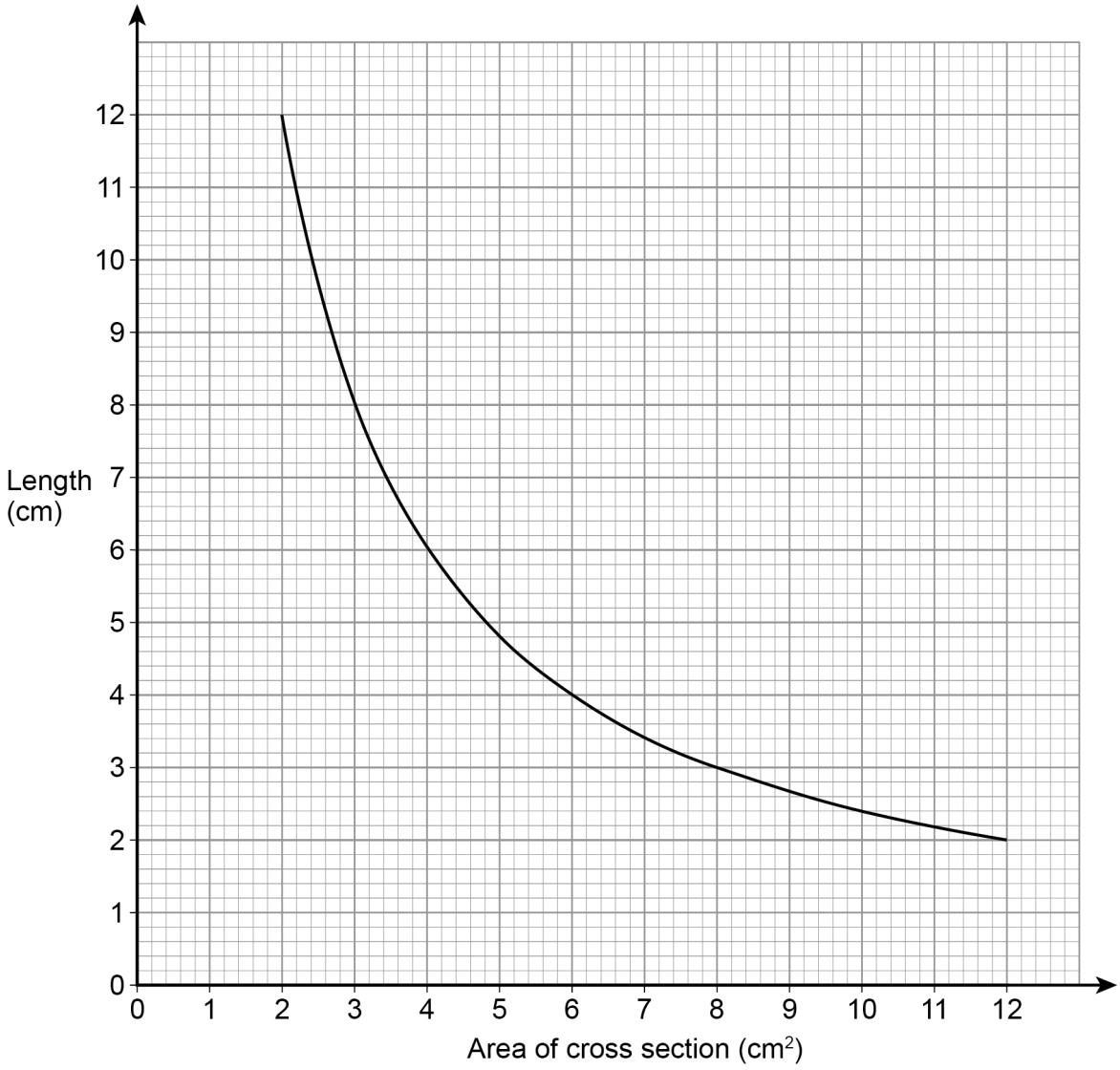
[3 marks]

Turn over for the next question

7

Do not write outside the box

25 The graph shows information about prisms with the same volume.



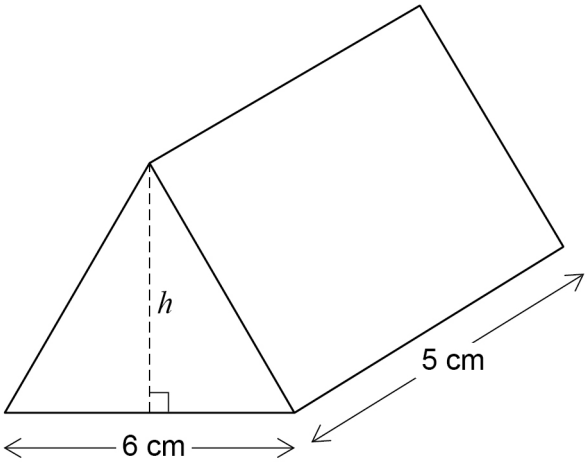
25 (a) Give **one** example to show the volume is 24 cm^3

[1 mark]

Do not write outside the box

25 (b) The diagram shows a prism with volume 24 cm^3

The height of the triangular cross section is h.



Work out the height, h.

[3 marks]

Answer _____ cm

Turn over for the next question

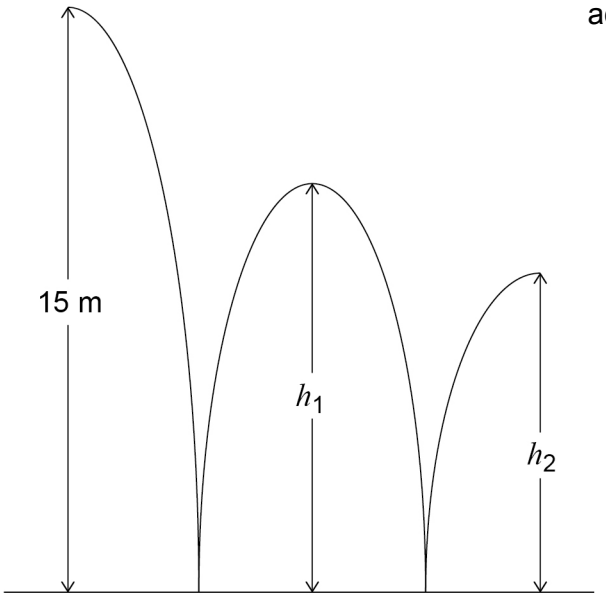
4

Do not write outside the box

26 A ball is thrown from a height of 15 metres.

It bounces to height h_1, then to height h_2 as shown.

Not drawn accurately



h_1 is three quarters of the original height.

26 (a) Jack expects h_2 to be three quarters of h_1

Work out the value of h_2 that he expects.

[2 marks]

Answer _____ metres

Do not write outside the box

26 (b) In fact, h_2 is two thirds of h_1

How does this affect the answer to part (a)?

Tick a box.

☐ The ball bounced higher than he expected

☐ The ball bounced lower than he expected

Show working to support your answer.

[2 marks]

Turn over for the next question

4

Do not write outside the box

27 Solve $4(3x - 2) = 2x - 5$

[3 marks]

$x =$ _____

28 Work out the next term of this quadratic sequence.

[2 marks]

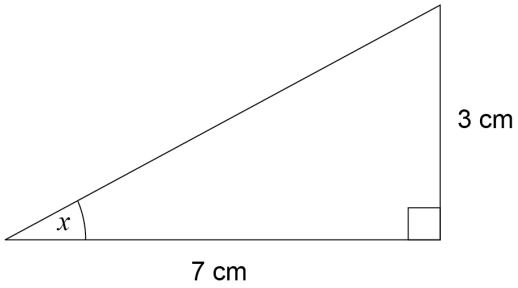
5 8 14 23 ……

Answer _____

Do not write outside the box

29 Work out the size of angle x.

Not drawn accurately



[2 marks]

Answer _____ degrees

END OF QUESTIONS

7

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