Please write clearly in block capitals.

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

Surname _____

Forename(s) _____

Candidate signature _____

GCSE
MATHEMATICS

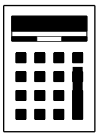
F

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	

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]

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

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

Circle the correct formula.

[1 mark]

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

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

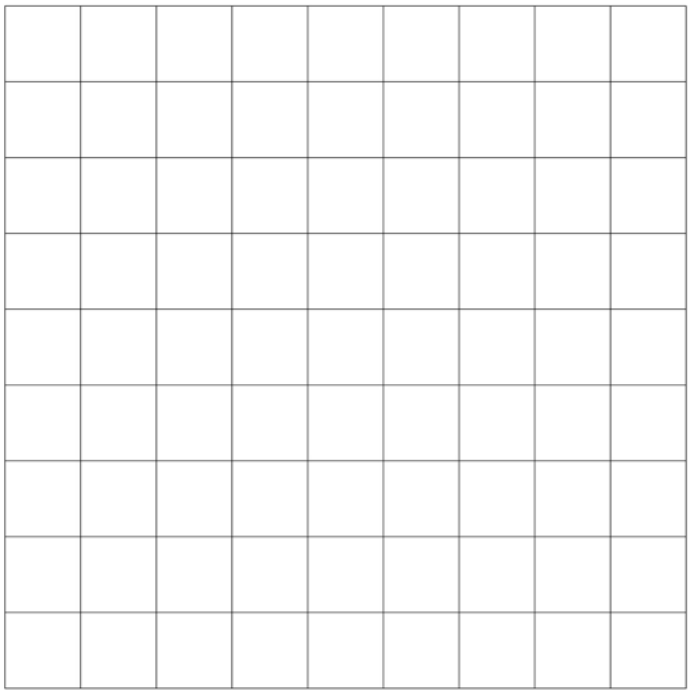
7

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]



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

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 £ _____

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

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]

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 $\frac{18\,953 \times 437}{11}$

[1 mark]

Answer _____

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

[3 marks]

_____

_____

_____

_____

_____

10

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

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?

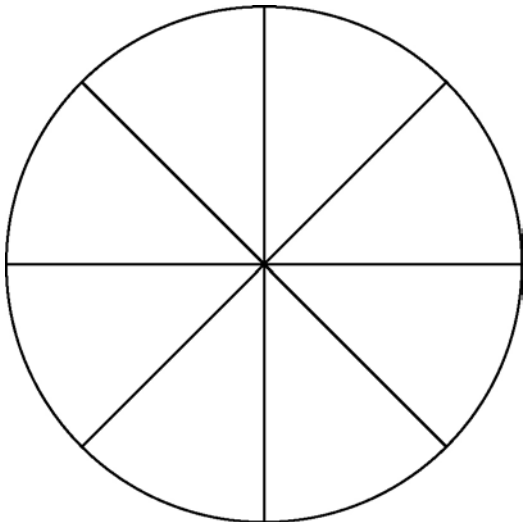
You **must** show your working.

[4 marks]

Answer _____

7

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

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?

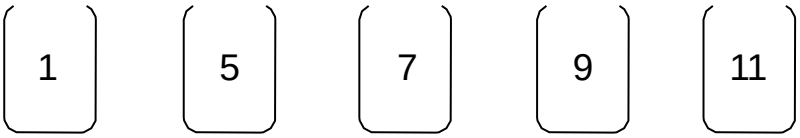
You **must** show your working.

[1 mark]

Answer

6

18 Here are five cards.



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 _____

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

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 £ _____

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

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]

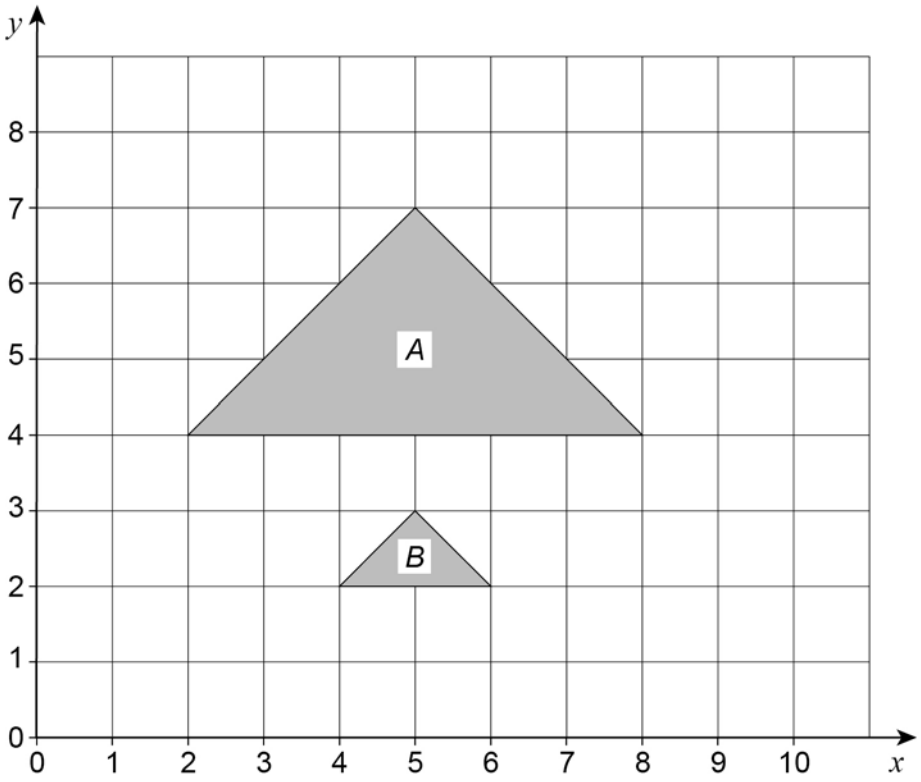
Mass of a television

Time taken to deliver a television

Height of a television mast

Number of televisions sold

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

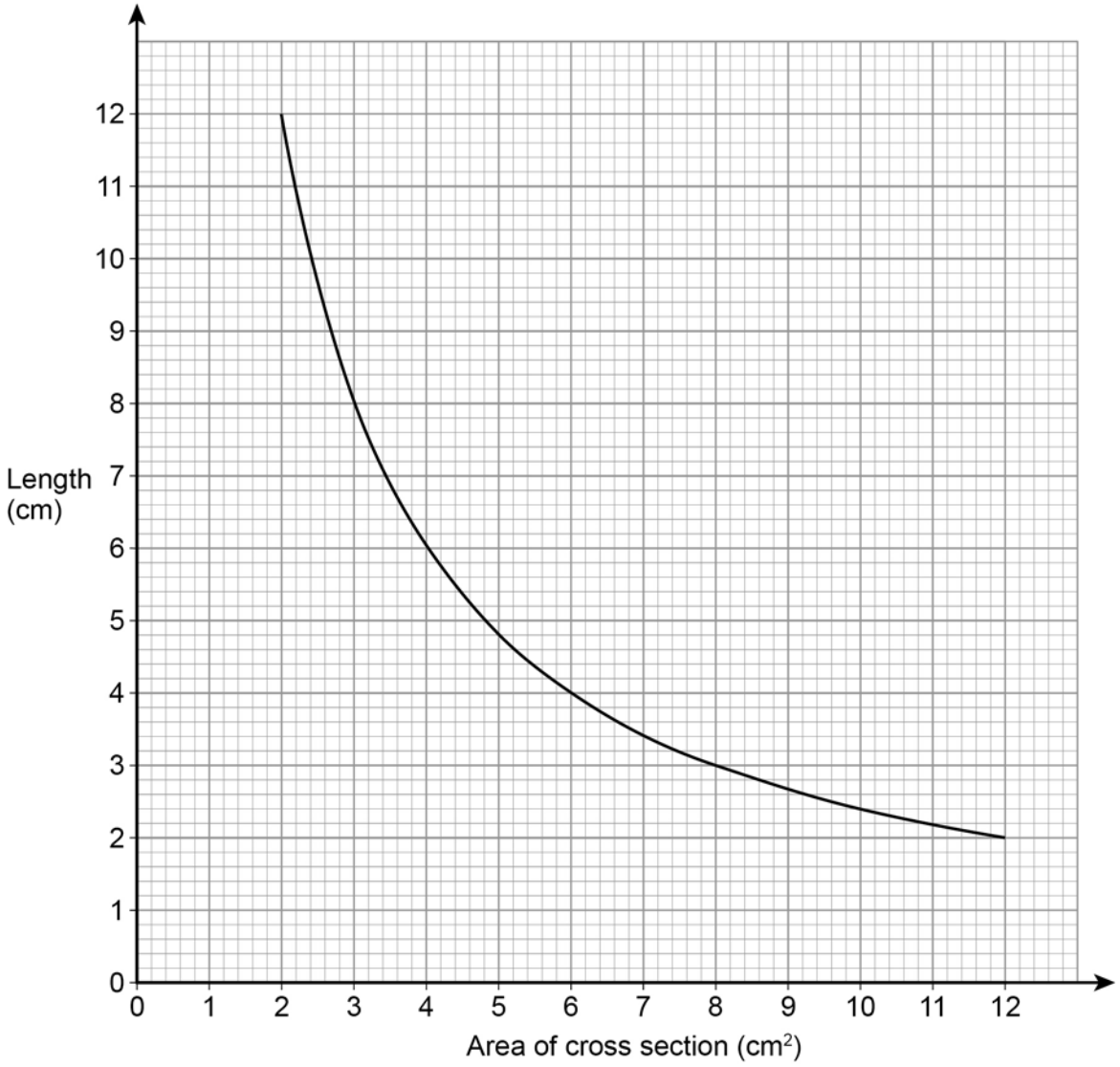


[3 marks]

Turn over for the next question

7

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

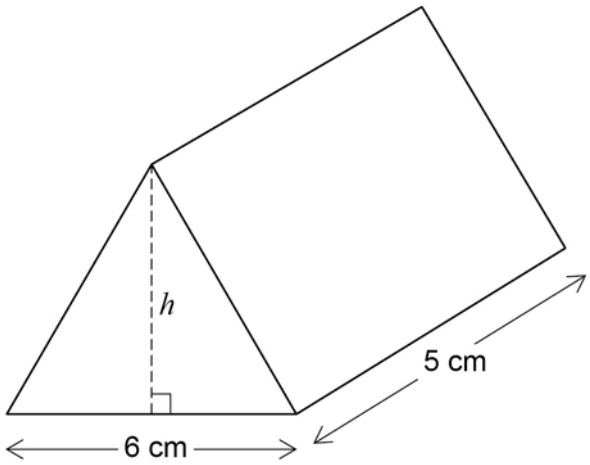


25 (a) Give **one** example to show the volume is 24 cm^3

[1 mark]

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

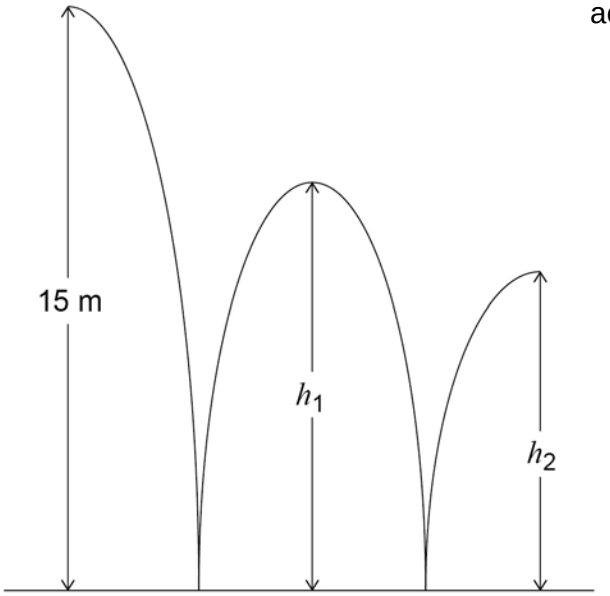
Turn over for the next question

4

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

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

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

[3 marks]

$x =$ _____

28 Work out the next term of this quadratic sequence.

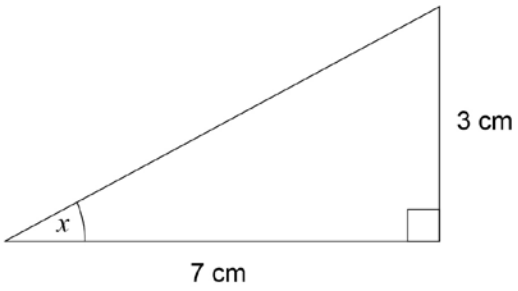
[2 marks]

5 8 14 23 ……

Answer _____

29 Work out the size of angle x.

Not drawn accurately



[2 marks]

Answer _____ degrees

END OF QUESTIONS

7

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