A

AQA

Surname _____

Other Names _____

Centre Number _____

Candidate Number _____

Candidate Signature _____

GCSE MATHEMATICS

F

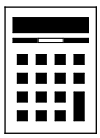
Foundation Tier **Paper 2 Calculator**

8300/2F

Monday 6 November 2017 **Morning**

Time allowed: 1 hour 30 minutes

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



At the top of the page, write your surname and other names, your centre number, your candidate number and add your signature.

[Turn over]

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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 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.

DO NOT TURN OVER UNTIL TOLD TO DO SO

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 _____

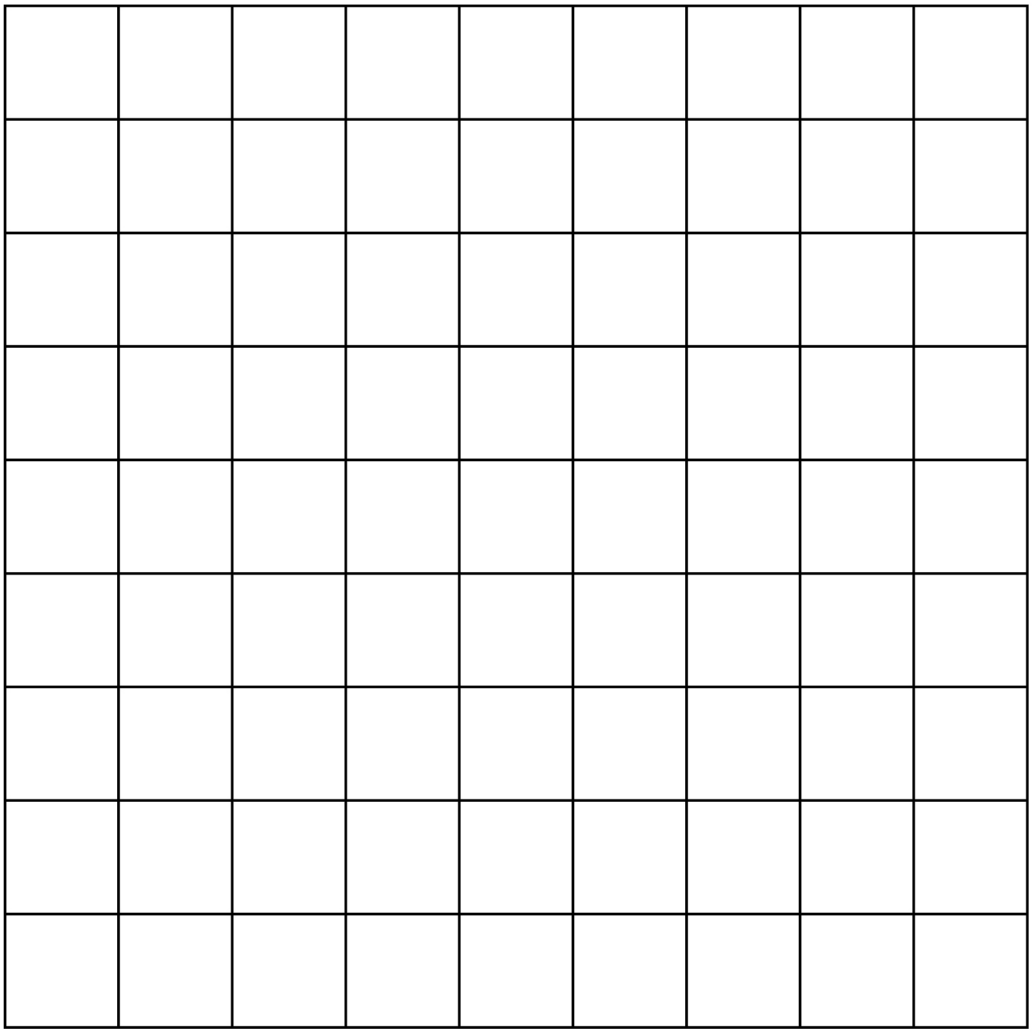
7

[Turn over]

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]



[Turn over]

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 _____ , _____ , _____ **6**

[Turn over]

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 £ _____

[Turn over]

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 _____

7

10 One of the angles in a triangle is 60°

Tick a box for each statement. [4 marks]

	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°			

[Turn over]

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

[Turn over]

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

[Turn over]

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]

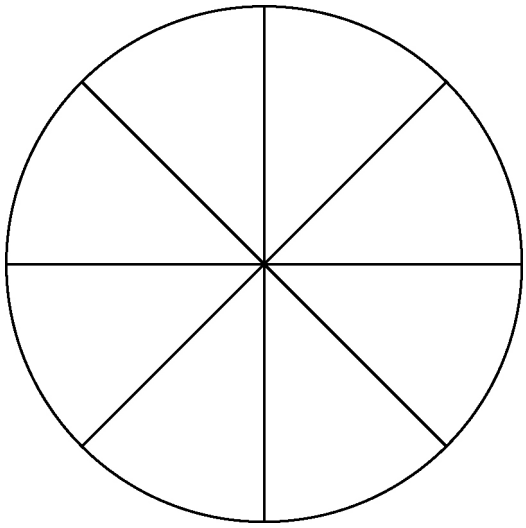
Answer _____

7

[Turn over]

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

It is 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**

[Turn over]

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.”

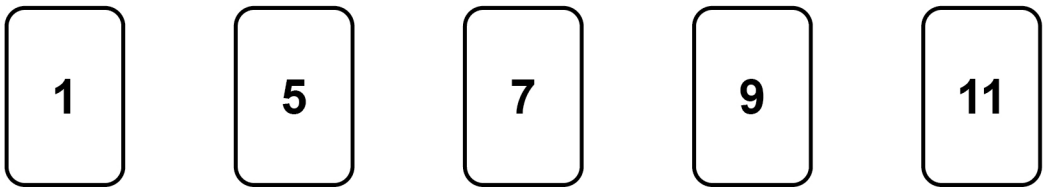
Is he correct?

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 _____

[Turn over]

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 _____ : _____

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 £ _____

[Turn over]

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 _____

9

[Turn over]

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

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

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

[Turn over]

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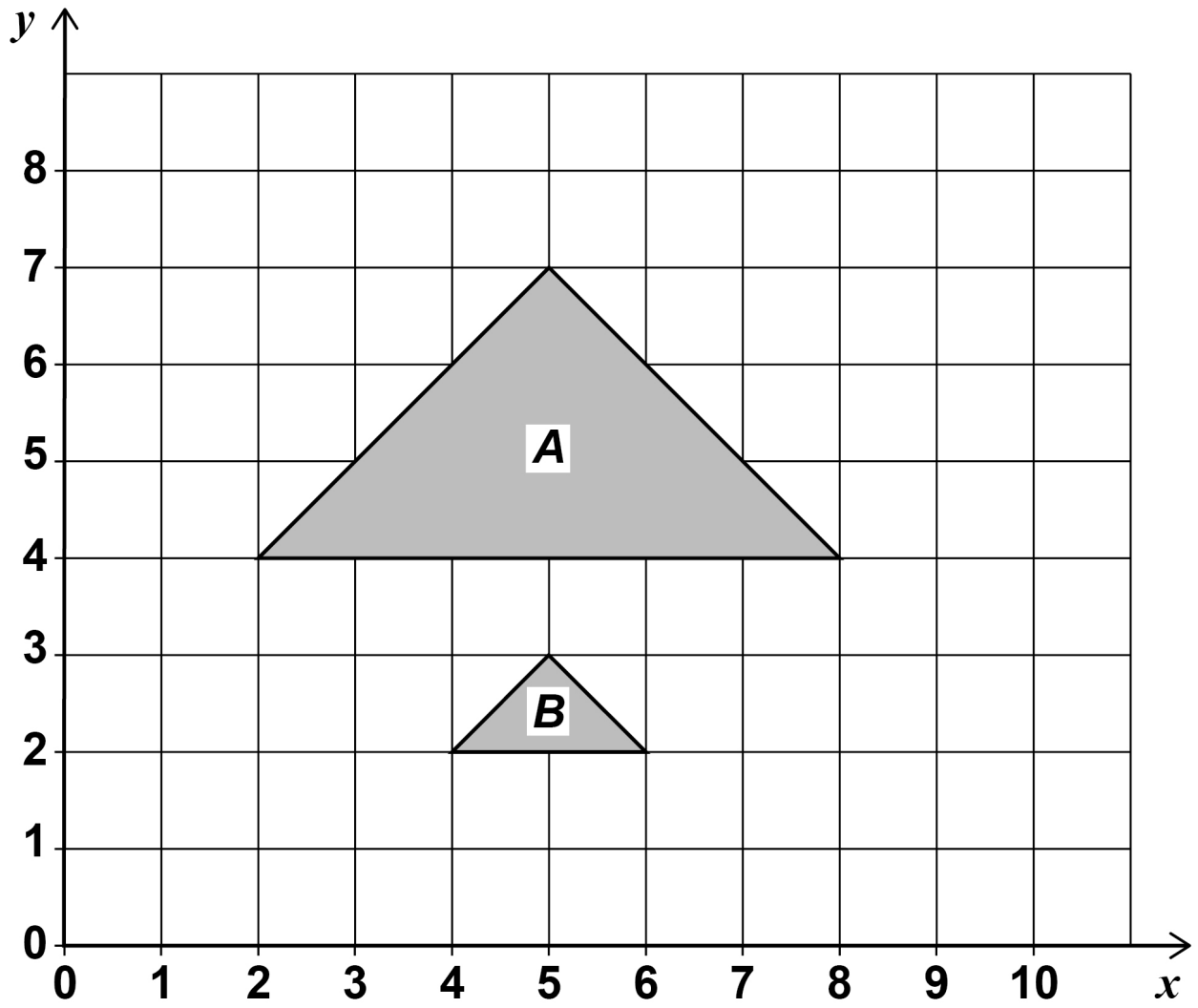
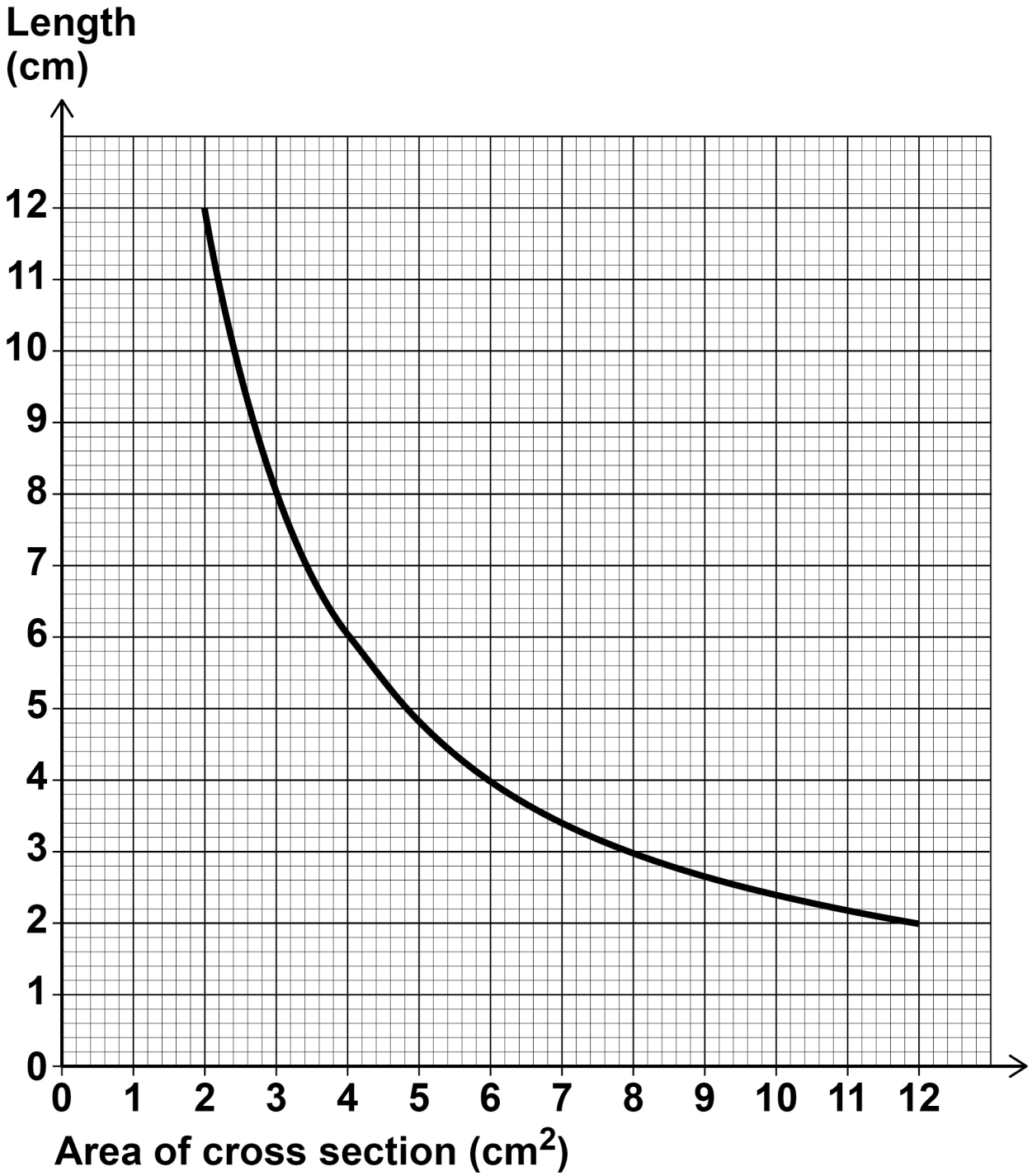
24 **Describe fully the SINGLE transformation that maps triangle *A* to triangle *B*. [3 marks]**



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]

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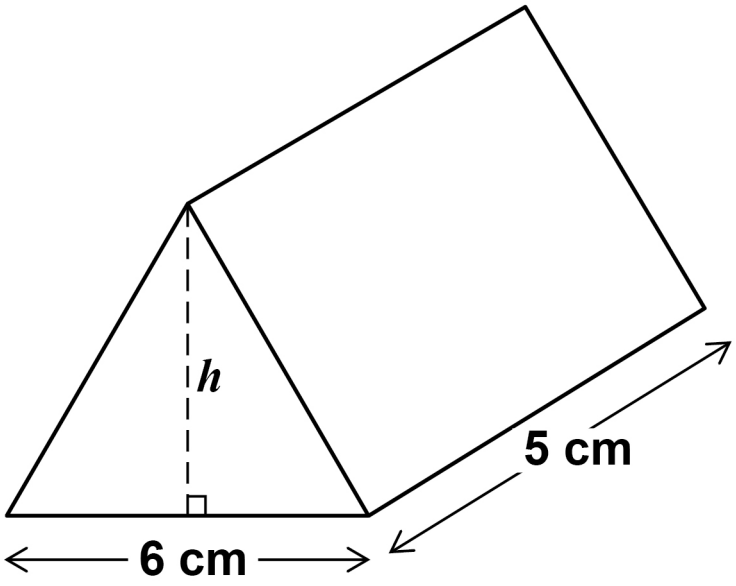
25 (b) The diagram shows a prism with volume 24 cm^3

The height of the triangular cross section is h.



Work out the height, h. [3 marks]

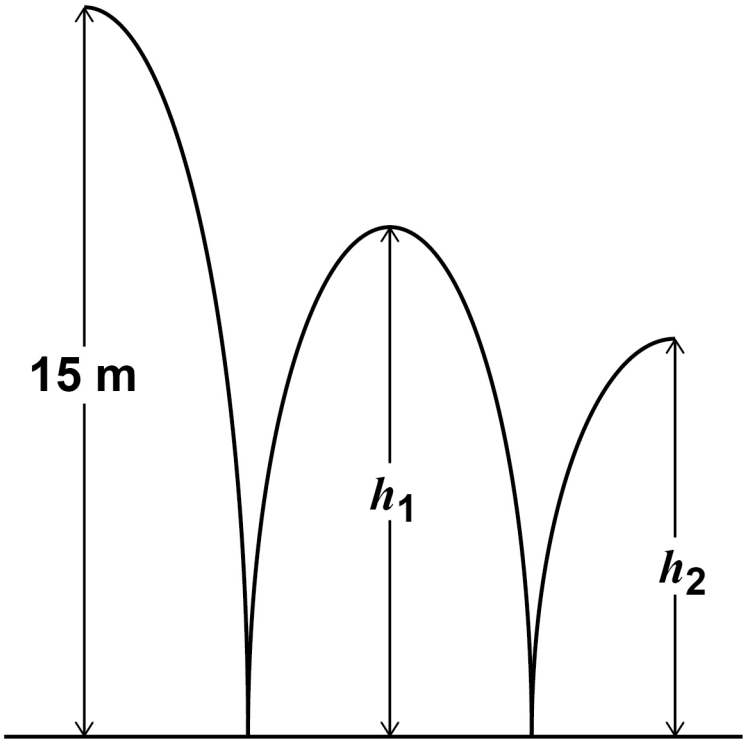
Answer _____ cm

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.

The diagram is 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

[Turn over]

BLANK PAGE

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]

4

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

$x =$ _____

28 **Work out the next term of this quadratic sequence.**
[2 marks]

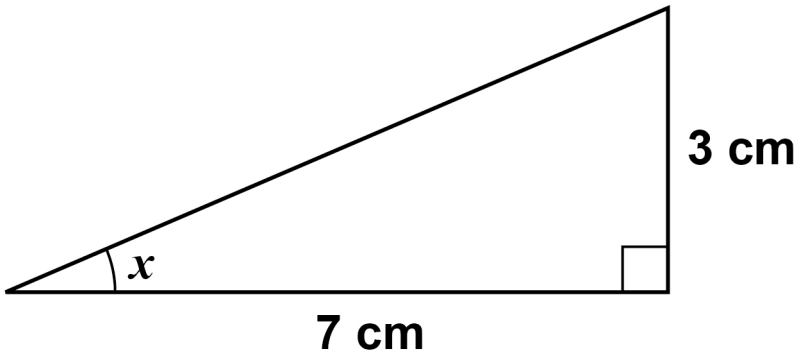
5 8 14 23 _____

Answer _____

[Turn over]

29 Work out the size of angle x.

The diagram is not drawn accurately. [2 marks]



Answer _____ degrees

7

END OF QUESTIONS

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For Examiner's Use	
Pages	Mark
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6–9	
10–12	
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20–23	
24–27	
28–31	
32–35	
36–39	
40–43	
44–46	
TOTAL	