

AQA MOCK TEST PAPERS

Paper3 - Test3

Please write clearly in block capitals.

Centre number

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Candidate number

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Surname

Forename(s)

Candidate signature

I declare this is my own work.

GCSE Mathematics

Higher tier - Paper 3 - Calculator

H

Time allowed: 1 hour 30 minutes

Materials

For this paper you must have:

- a calculator
- mathematical instruments
- the Formulae Sheet (enclosed).



Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
 - Fill in the boxes at the top of this page.
 - 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.
 - If you need extra space for your answer(s), use the lined pages at the end of this book. Write the question number against your answer(s).
- 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 Write the number 32 in the form 2^n

[1 mark]

Answer

2 Write down a fraction equivalent to 1.3285

[1 mark]

Answer _____

3 Solve $3x + 15 = 2x + 30$

[2 marks]

 $x =$ _____

4 Here are the first five terms of a sequence.

-3, -7, -11, -15, -19

Work out an expression for the n th term of the sequence.

[2 marks]

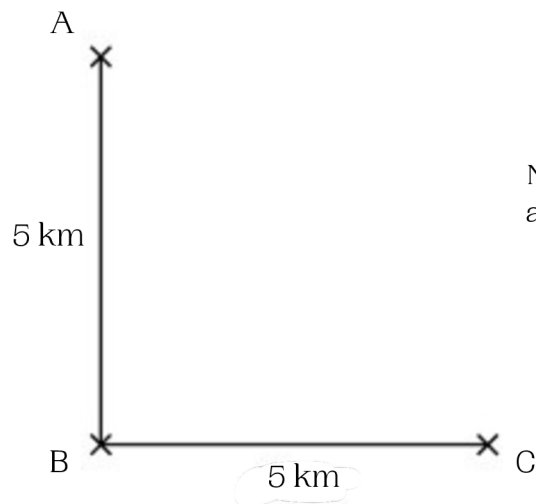
Answer _____

5 A population of birds in a forest is decreasing by 3% each year due to habitat loss. The current population is 50,000 birds. Calculate the expected population after 6 years. You must show your working.

[3 marks]

Answer _____

- 6 B is
5 km due South of A
and
5 km due West of C.



Work out the bearing of A from C.

[2 marks]

Answer

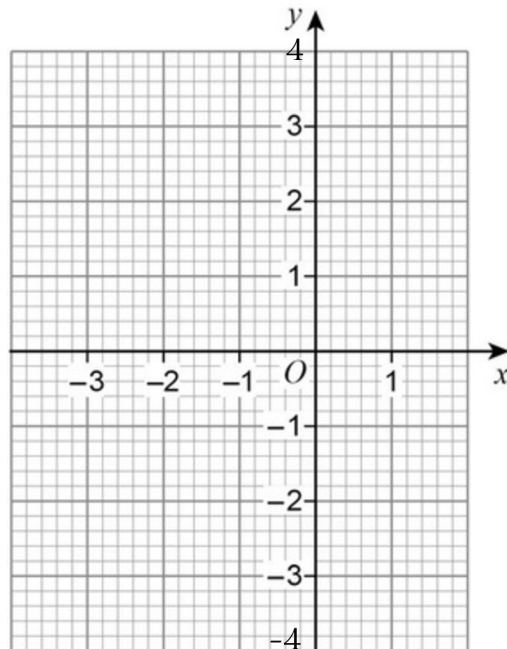
7 (a) Complete the table of values for $y = x^2 + 3x$

[2 marks]

x	-3	-2	-1	0	1
y	0		-2	0	

7 (b) Draw the graph of $y = x^2 + 3x$ for values of x from -3 to 1

[2 marks]



Turn over for the next question

- 8 Sofia has £3600. She saves some of it and gives the rest to her three cousins.

money saved : money given to cousins = 3 : 4.

She gives each cousin the same amount.

Does each cousin receive more than £400?

You must show your working.

[4 marks]

- 9 The table gives information about the languages studied by year 10 students at school A.

Language	French	German	Spanish
Number of Students	56	37	27

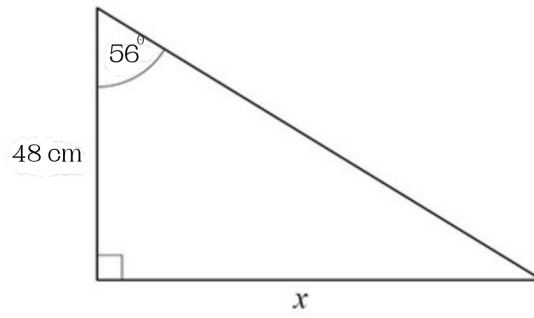
Draw an accurate pie chart for this information.

[4 marks]



Turn over for the next question

10 Use trigonometry to work out the value of x .



Not drawn
accurately

[3 marks]

$x =$ _____ cm

11 Write $2.\overline{354}$ as a fraction in its simplest form.

[3 marks]

Answer _____

6

Turn over ►

- 12 A biased spinner can land on red, blue, green and yellow
The table shows the probabilities that the spinner will land on red, blue
and green.

Colour	Red	Blue	Green	Yellow
Probability	0.25	0.35	0.10	

(a) Complete the table.



[2 marks]

- 12 (b) Bethany is going to spin the spinner 60 times.
Work out an estimate for the number of times the spinner will
land on blue.



[2 marks]

Answer _____

Turn over for the next question

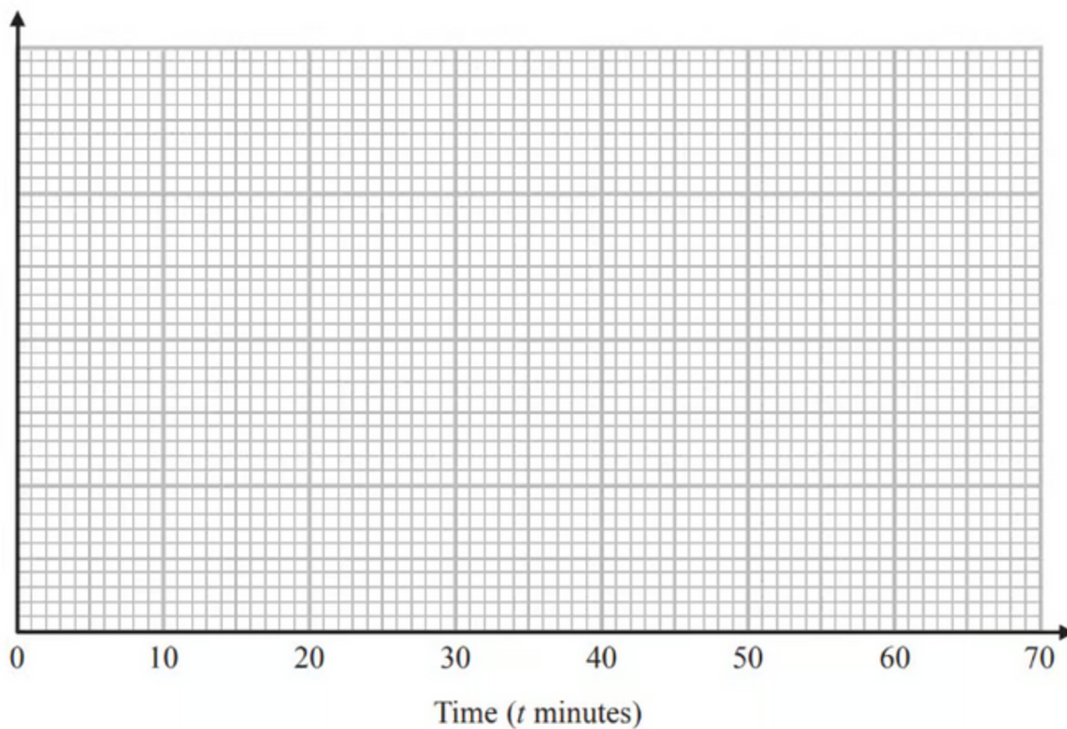
- 15 The table gives the information about the lengths of time some people were in shopping mall.

15 (a)

Time (t minutes)	Frequency
$0 < t \leq 5$	10
$5 < t \leq 15$	30
$15 < t \leq 30$	35
$30 < t \leq 40$	17
$40 < t \leq 60$	8

Draw a histogram for the information in the table.

[3 marks]



15 (b) Simplify $\frac{(5ab^3)^3}{25ab^2}$

[3 marks]

Answer

6

Turn over ►

18 $f(x) = 3x^2 + 2x$
 $g(x) = x - 4$

18 (a) Show that $fg(x) = 3x^2 - 22x + 40$

[3 marks]

18 (b) Solve $3fg(x) = 18$

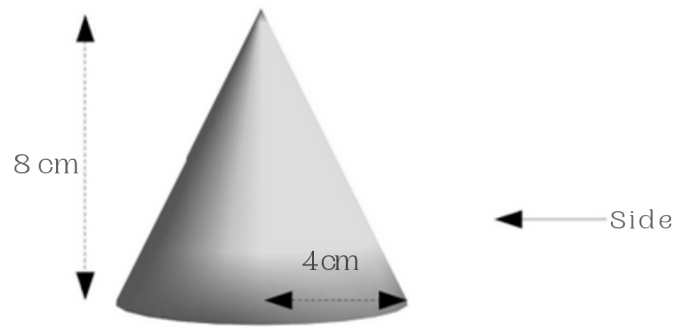
[3 marks]

Answer

20 (a) Prove algebraically that the sum of any three consecutive even integers is always a multiple of 6.

[2 marks]

21 The diagram shows a cone with radius 4 cm and perpendicular height of 8 cm



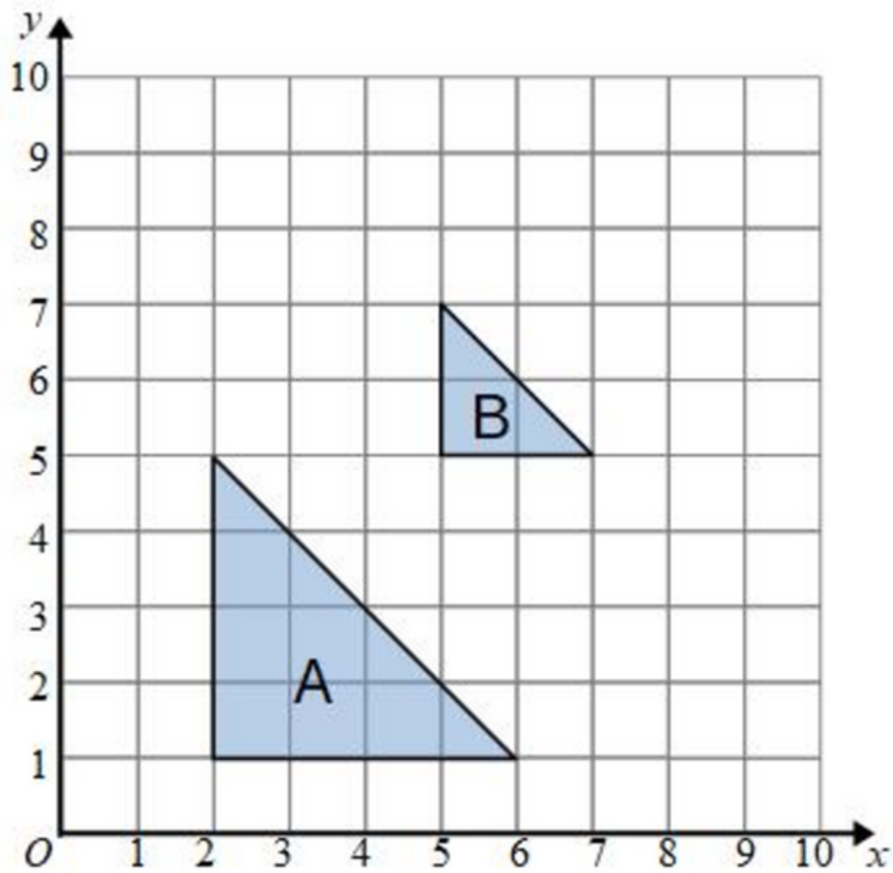
On the centimetre grid below, draw the plan and the side elevation of the cone.

[3 marks]



22

Shape A and shape B are shown on the grid.

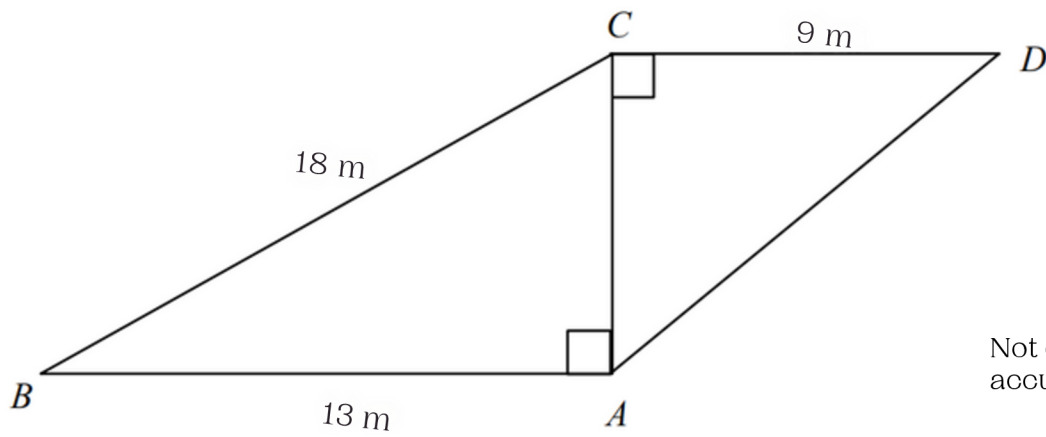


Describe the single transformation that maps shape A onto shape B.

[3 marks]

Turn over ►

- 23 Calculate the length of the AD.
Give your answer to 3 significant figures.



Not drawn
accurately

[4 marks]

24 James is thinking of a number.

He says:

"My number is a prime number and it is a factor of 45."

Write down all the possible numbers James could be thinking of.

[2 marks]

Answer _____

END OF QUESTIONS