AQA

Surname _____

Forename(s) _____

Candidate signature _____

I declare this is my own work.

GCSE MATHEMATICS

F

Foundation Tier

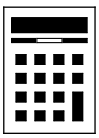
Paper 2 Calculator

Shadow paper based on June 2024 question paper

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	
TOTAL	

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

Do not write outside the box

1 (a) Write 0.41 as a fraction.

[1 mark]

Answer _____

1 (b) Write $\frac{3}{4}$ as a decimal.

[1 mark]

Answer _____

1 (c) Write 0.78 as a percentage.

[1 mark]

Answer _____ %

Do not write outside the box

2 (a) Simplify fully $x + 6x$

[1 mark]

Answer _____

2 (b) Simplify fully $4 \times 5p$

[1 mark]

Answer _____

2 (c) Simplify fully $10y \div y$

[1 mark]

Answer _____

2 (d) Simplify fully $w \times w \times w$

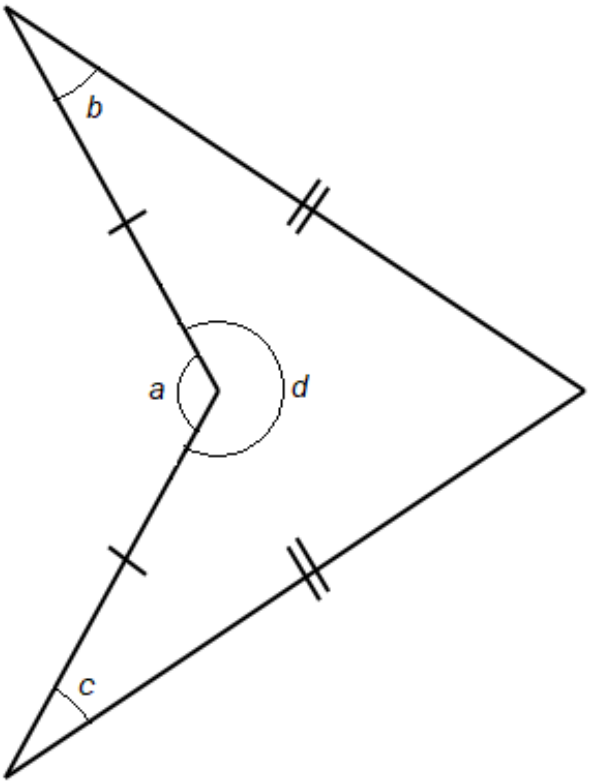
[1 mark]

Answer _____

7

Do not write outside the box

3 Here is a quadrilateral.



3 (a) Write down the letter of the reflex angle.

[1 mark]

Answer _____

3 (b) Write down the letter of an acute angle.

[1 mark]

Answer _____

3 (c) How many lines of symmetry does the shape have?

[1 mark]

Answer _____

Do not write outside the box

4 (a) One baguette costs £1.19

How much do **nine** of these baguettes cost?

[1 mark]

Answer £ _____

4 (b) Five avocados cost £4.45 in total.

How much do **three** of these avocados cost?

[1 mark]

Answer £ _____

Turn over for the next question

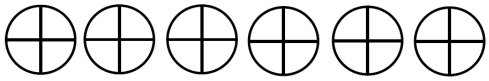
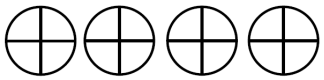
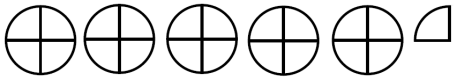
5

Do not write outside the box

5 A restaurant sells three types of pizzas.

The pictogram shows how many pizzas they sold one week.

Key:  represents 24 pizza

Margherita	
Pepperoni	
Veggie	

5 (a) The restaurant sold **more** margherita pizzas than pepperoni pizzas that week.

How many more?

[2 marks]

Answer _____

5 (b) The restaurant sells each **veggie** pizza for £13.75

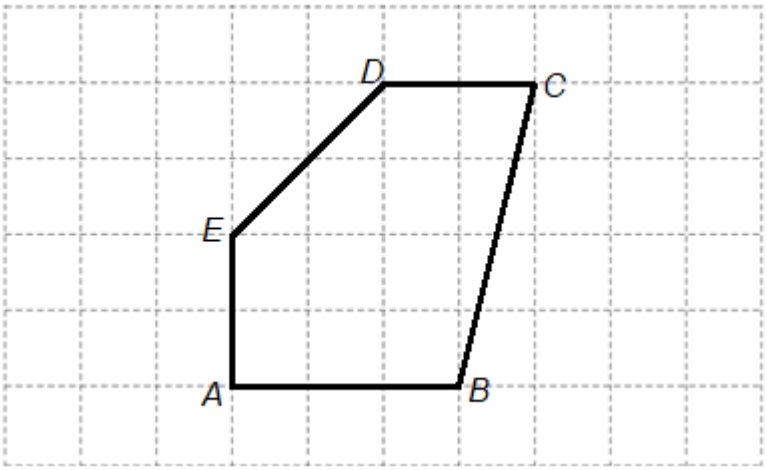
Work out the total amount of money made from selling **veggie** pizzas that week.

[3 marks]

Answer £ _____

Do not write outside the box

6 Shape *ABCDE* is drawn on a centimetre grid.



6 (a) Complete this statement.

[1 mark]

AB : _____ = 3 : 2

6 (b) On this centimetre grid,

draw a **rectangle** with the same area as shape *ABCDE*.

[2 marks]

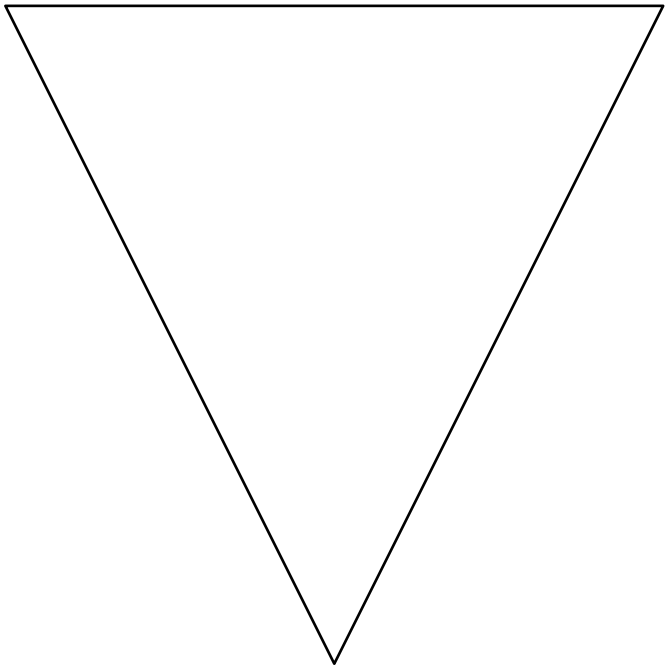
8

Turn over ►

Do not write outside the box

7 Use a ruler for this question.

Here is an **accurate** drawing of an equilateral triangle.



By measuring, work out the perimeter of the triangle.

State the units of your answer.

[3 marks]

Answer _____

Do not write outside the box

8 There are 60 cubes in a box.

The cubes are yellow, purple, orange or black.

18 cubes are yellow.

There are an **equal** number of purple, orange and black cubes.

8 (a) How many purple cubes are in the box?

[2 marks]

Answer _____

8 (b) 25 **more** cubes are added to the box.

A cube is picked at random.

The probability that the cube is yellow is 0.6

How many of the 25 cubes added to the box are yellow?

[3 marks]

Answer _____

8

Do not write outside the box

9 An electric car uses 1 unit of electricity to travel 4 miles.

1 unit of electricity costs 60 pence.

Work out the cost of electricity, in pounds, to travel 320 miles.

[3 marks]

Answer £ _____

Do not write outside the box

10 (a) Karen buys 2 metres of silk at £17.50 per metre.

She also buys 5 metres of wool.

The **total** cost is £58

What is the cost of **one** metre of wool?

[4 marks]

Answer £ _____

10 (b) Tickets to a show cost £4.50 each.

The greatest number of tickets Asmae can buy with £30 is 6

She says,

"The greatest number of tickets I can buy with £60 is 12 because £60 is double £30"

Is she correct?

Tick a box.

Yes ☐ No ☐

Show working to support your answer.

[2 marks]

9

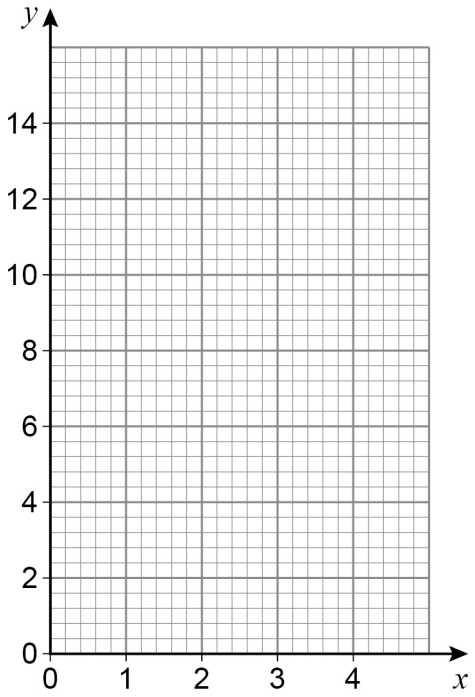
Do not write outside the box

11 Here is a table of values for the equation $y = 3x - 1$

x	1	2	3	4
y	2	5	8	11

11 (a) Draw the graph of $y = 3x - 1$ for values of x from 1 to 4

[2 marks]



11 (b) Work out the value of y when $x = 3.5$

[2 marks]

$y =$ _____

Do not write outside the box

12 A code has five **different** digits from 1-9, written in order, starting with the smallest.

The second digit is the **only** odd number.

The last digit is the **only** cube number.

Work out the code.

[3 marks]

Answer _____ _____ _____ _____ _____

13 Four numbers have a mean of 8

Three of the numbers are 6 7 10

Work out the other number.

[3 marks]

Answer _____

10

Turn over ►

Do not write outside the box

14 (a) Rearrange $k = m + 5$ to make m the subject.

[1 mark]

$m =$ _____

14 (b) Rearrange $p = \frac{t}{4}$ to make t the subject.

[1 mark]

$t =$ _____

15 A linear sequence begins

3 8 13 18

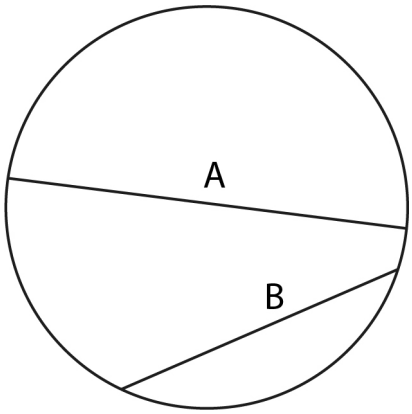
Work out an expression for the nth term.

[2 marks]

Answer _____

Do not write outside the box

16 The diagram shows a circle, centre *O*, and two straight lines.



Use **one** word to describe each line.

Choose from

arc	chord	sector	segment	diameter

[2 marks]

Line A _____

Line B _____

17 Work out $\begin{pmatrix} 3 \\ 4 \end{pmatrix} + \begin{pmatrix} 5 \\ 2 \end{pmatrix}$

[1 mark]

Answer ( )

7

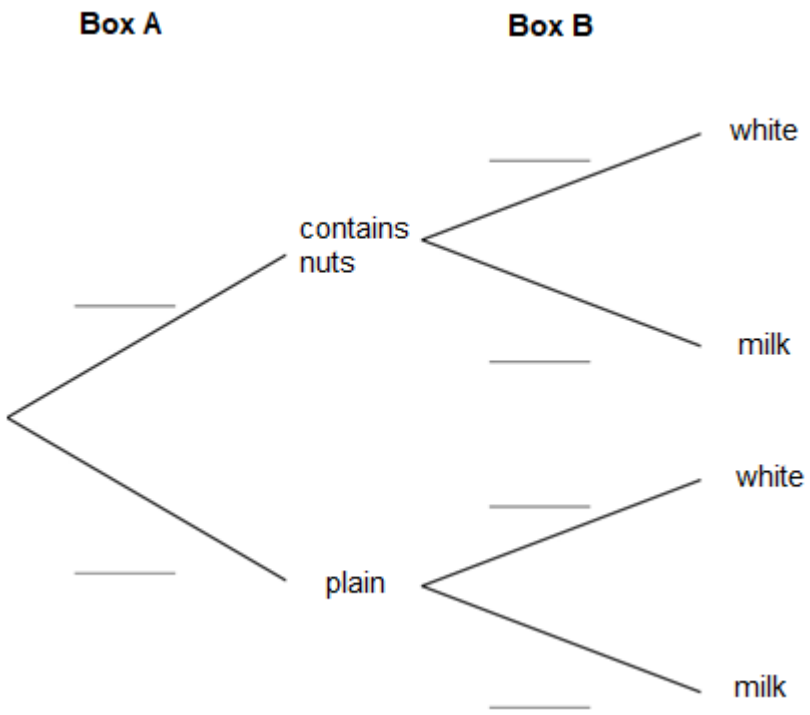
Do not write outside the box

18 Box A and box B contain chocolates.

Box A	**Box B**
$\frac{1}{5}$ contain nuts The rest are plain	7 are white 3 are milk

18 (a) Complete the probability tree diagram.

[2 marks]



18 (b) One chocolate is taken at random from each box.

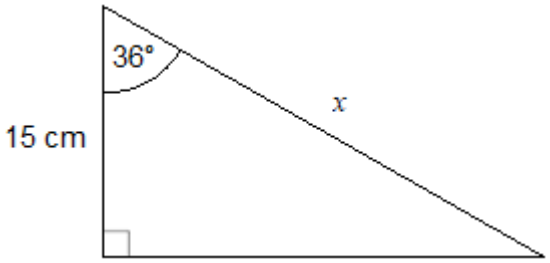
Work out the probability that one contains nuts and one is white.

[2 marks]

Answer _____

Do not write outside the box

19



Not drawn accurately

Use trigonometry to work out the value of x.

[3 marks]

$x =$ _____ cm

20 The mass a boulder is 2 088 000 kg

This value is a 28% reduction from the **original** mass of the boulder.

Work out the **original** mass of the boulder.

Give your answer in standard form.

[3 marks]

Answer _____ kg

10

Do not write outside the box

21 A gardener has a bag of seeds.

He wants to

use all the seeds

plant the same number of seeds in each row.

$$R = \frac{k}{s}$$

R is the number of rows.

s is the number of seeds in each row.

21 (a) What does the constant k represent?

Tick the correct box.

[1 mark]

☐ The number of seeds in each row

☐ The number of rows

☐ The number of seeds in the bags

☐ None of the above

21 (b) Complete the table.

[2 marks]

s	30	120	
R	20		2

Do not write outside the box

22 (a) A fair spinner has eight equal sections, each with the number 1, 2, 3 or 4

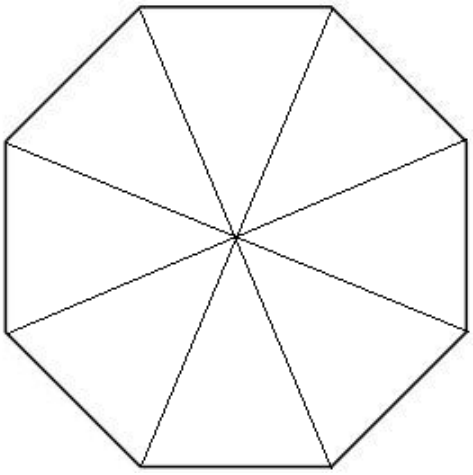
Each number appears at least once.

P(even number) = P(1)

Work out P(3)

You may use the blank spinner to help you.

[3 marks]



Answer _____

22 (b) A different spinner has four sections, each labelled A, B, C or D.

	A	**B**	**C**	**D**
Probability	0.3	0.25	0.4	0.2

Give **one** reason why there **must** be a mistake in the table.

[1 mark]

_____

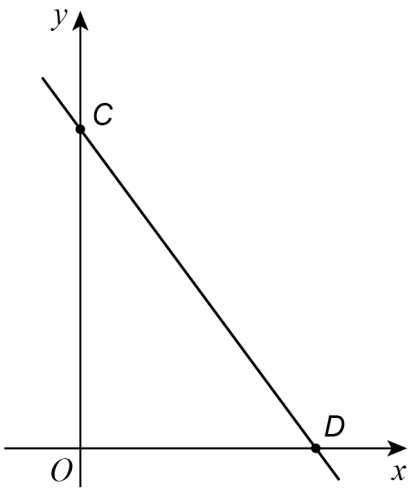
_____

_____

7

Do not write outside the box

23 (a) Here is a sketch of the graph $y = -3x + 12$

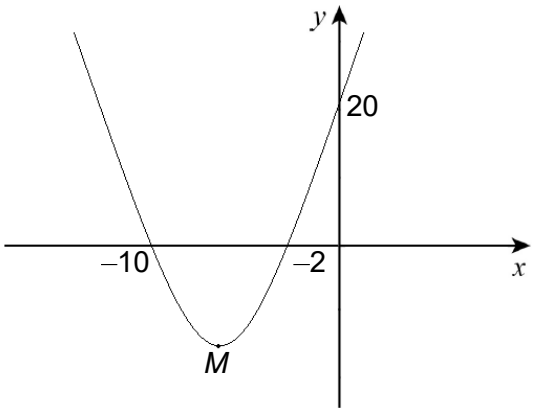


Complete the coordinates of *C* and *D*.

[2 marks]

C (0 , _____) *D* (_____ , 0)

23 (b) Here is a sketch of a quadratic graph.



Complete the following statements.

[2 marks]

The value of the ***y*-intercept** is _____

The ***x*-coordinate** of the minimum point, *M*, is _____

Do not write outside the box

24 Reece flips a biased coin a number of times.

Here is some information about the outcomes.

Total number of flips	10	100	1000	10000
Number of heads	3	37	389	3591

What is the best estimate for the probability of flipping a head?

Explain why this is the best estimate.

[2 marks]

Probability _____

Explanation _____

_____

_____

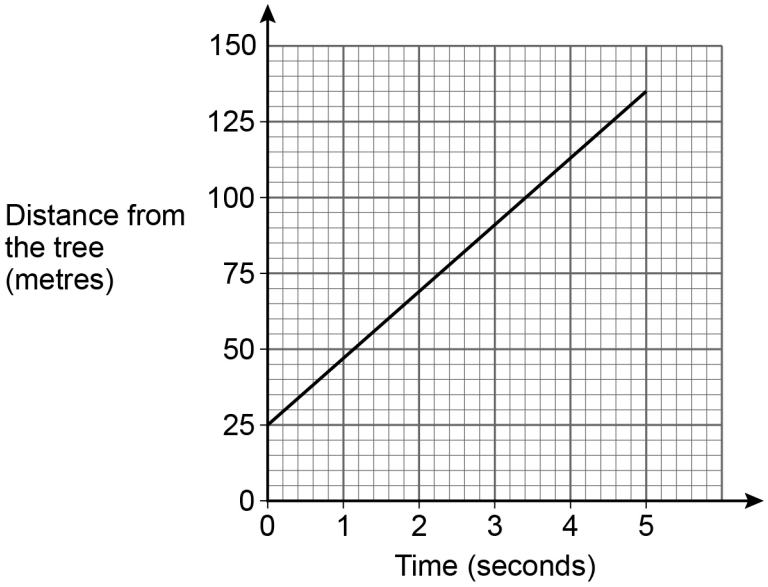
Turn over for the next question

6

Do not write outside the box

25 A cheetah is sprinting in a straight line away from a tree.

The graph shows the cheetah's distance from the tree.



Work out the speed of the cheetah in metres per second.

[3 marks]

Answer _____ m/s

END OF QUESTIONS

3

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