

Please write clearly in block capitals.

Centre number

Candidate number

Surname \_\_\_\_\_

Forename(s) \_\_\_\_\_

Candidate signature \_\_\_\_\_

I declare this is my own work.

# GCSE MATHEMATICS

# F

Foundation Tier      Paper 2 Calculator

Monday 3 June 2024

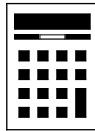
Morning

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	
<b>TOTAL</b>	



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

1 (a) Write 0.27 as a fraction.

[1 mark]

Answer \_\_\_\_\_

1 (b) Write  $\frac{2}{5}$  as a decimal.

[1 mark]

Answer \_\_\_\_\_

1 (c) Write 0.35 as a percentage.

[1 mark]

Answer \_\_\_\_\_ %



2 (a) Simplify fully  $x + 4x$

[1 mark]

Answer \_\_\_\_\_

2 (b) Simplify fully  $5 \times 2w$

[1 mark]

Answer \_\_\_\_\_

2 (c) Simplify fully  $2m \div m$

[1 mark]

Answer \_\_\_\_\_

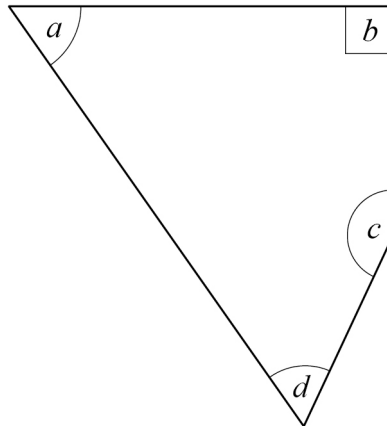
2 (d) Simplify fully  $y \times y \times y$

[1 mark]

Answer \_\_\_\_\_



3 Here is a quadrilateral.



3 (a) Write down the letter of the obtuse 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 \_\_\_\_\_



4 (a) One lettuce costs £1.29

How much do **seven** of these lettuces cost?

[1 mark]

---

---

---

Answer £ \_\_\_\_\_

4 (b) Five cucumbers cost £6.40 in total.

How much do **two** of these cucumbers cost?

[1 mark]

---

---


---

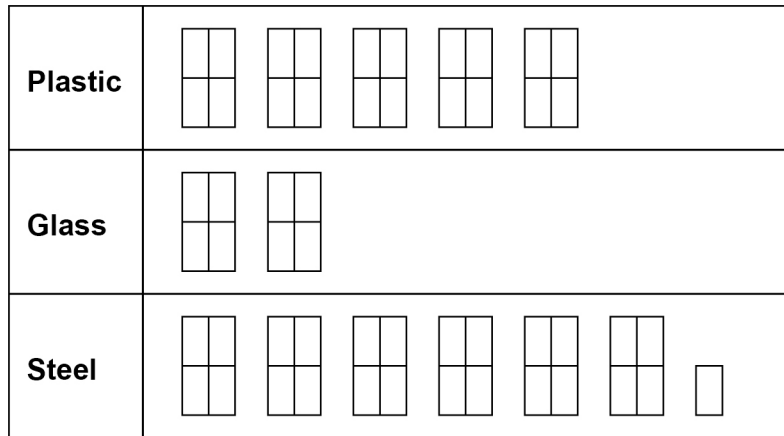
Answer £ \_\_\_\_\_

Turn over for the next question



- 5 A company sells three types of bottle.  
The pictogram shows how many bottles they sold one week.

Key:  represents 20 bottles



- 5 (a) The company sold **more** plastic bottles than glass bottles that week.  
How many more?

[2 marks]

---



---

Answer \_\_\_\_\_

- 5 (b) The company sells each **steel** bottle for £17.50  
Work out the total amount of money made from selling **steel** bottles that week.

[3 marks]

---



---



---



---

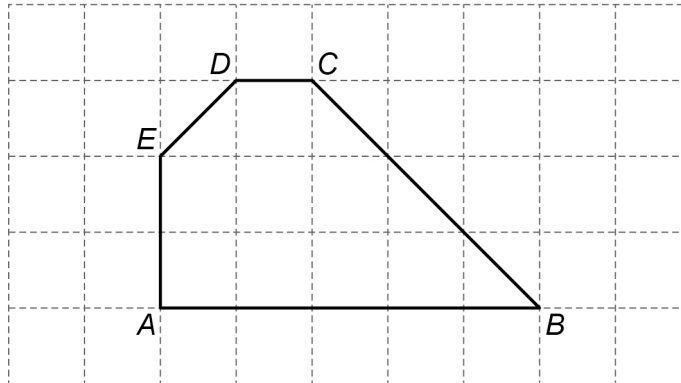


---

Answer £ \_\_\_\_\_



- 6 Shape  $ABCDE$  is drawn on a centimetre grid.



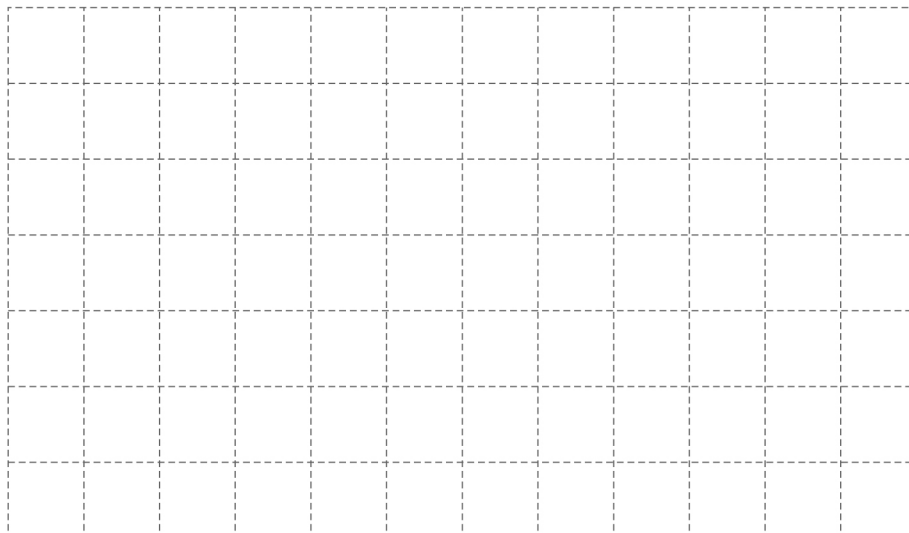
- 6 (a) Complete this statement.

[1 mark]

$$AB : \underline{\hspace{2cm}} = 5 : 1$$

- 6 (b) On this centimetre grid,  
draw a **rectangle** with the same area as shape  $ABCDE$ .

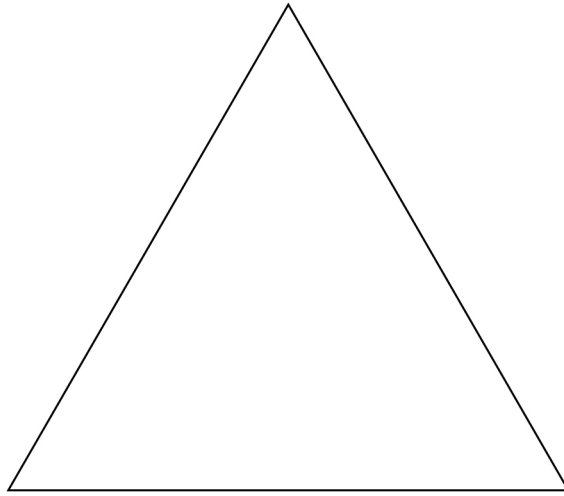
[2 marks]



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 \_\_\_\_\_



- 8** There are 56 cubes in a box.  
The cubes are green, red, blue or white.  
17 cubes are green.  
There are an **equal** number of red, blue and white cubes.

- 8 (a)** How many red cubes are in the box?

**[2 marks]**

---

---

Answer \_\_\_\_\_

- 8 (b)** 24 **more** cubes are added to the box.  
A cube is picked at random.  
The probability that the cube is green is 0.4

How many of the 24 cubes added to the box are green?

**[3 marks]**

---

---

---

---

---

Answer \_\_\_\_\_



- 9** An electric car uses 1 unit of electricity to travel 3 miles.  
1 unit of electricity costs 50 pence.

Work out the cost of electricity, in pounds, to travel 270 miles.

**[3 marks]**

---

---

---

---

---

---

---

Answer £ \_\_\_\_\_



- 10 (a)** Leema buys 2 metres of linen at £8.50 per metre.  
She also buys 5 metres of cotton.  
The **total** cost is £38

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

[4 marks]

---



---



---



---



---



---



---



---

Answer £ \_\_\_\_\_

- 10 (b)** Buttons cost 65p each.  
The greatest number of buttons Leema can buy with £5 is 7  
She says,

“The greatest number of buttons I can buy with £10 is 14 because £10 is double £5”

Is she correct?

Tick a box.

Yes

No

Show working to support your answer.

[2 marks]

---



---



---

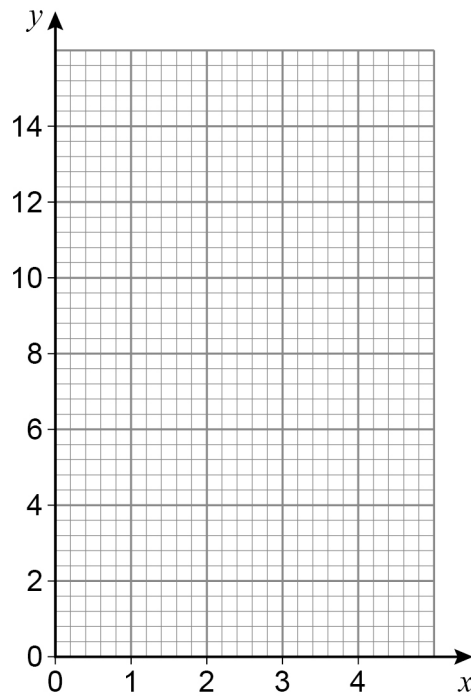


11 Here is a table of values for the equation  $y = 3x + 1$

$x$	1	2	3	4
$y$	4	7	10	13

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  $x = 2.5$

[2 marks]

---

$y =$  \_\_\_\_\_



- 12** A code has five **different** digits written in order, starting with the smallest.  
The last digit is the **only** square number.  
The middle digit is the **only** even number.

Work out the code.

**[3 marks]**

---

---

---

---

---

Answer \_\_\_\_\_

- 13** Four numbers have a mean of 10

Three of the numbers are 5 8 9

Work out the other number.

**[3 marks]**

---

---

---

---

---

Answer \_\_\_\_\_



**14 (a)** Rearrange  $d = h - 4$  to make  $h$  the subject.

**[1 mark]**

---

---

$$h = \underline{\hspace{10em}}$$

**14 (b)** Rearrange  $p = \frac{w}{3}$  to make  $w$  the subject.

**[1 mark]**

---

---

---

$$w = \underline{\hspace{10em}}$$

**15** A linear sequence begins

2   5   8   11

Work out an expression for the  $n$ th term.

**[2 marks]**

---

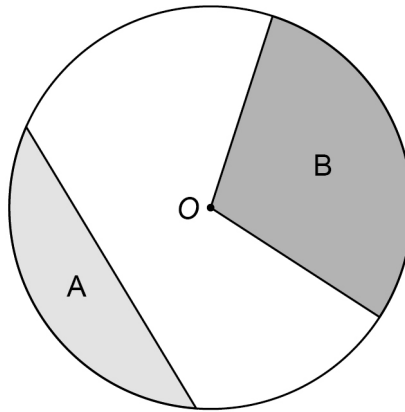
---

---

Answer  $\underline{\hspace{10em}}$



- 16 The diagram shows a circle, centre  $O$ , and three straight lines.



Use **one** word to describe each shaded region.

Choose from

arc    chord    sector    segment    tangent

[2 marks]

Region A \_\_\_\_\_

Region B \_\_\_\_\_

17

Work out  $\begin{pmatrix} 1 \\ 2 \end{pmatrix} + \begin{pmatrix} 4 \\ 6 \end{pmatrix}$

[1 mark]

---



---

Answer

$\left( \quad \right)$

7

Turn over ►



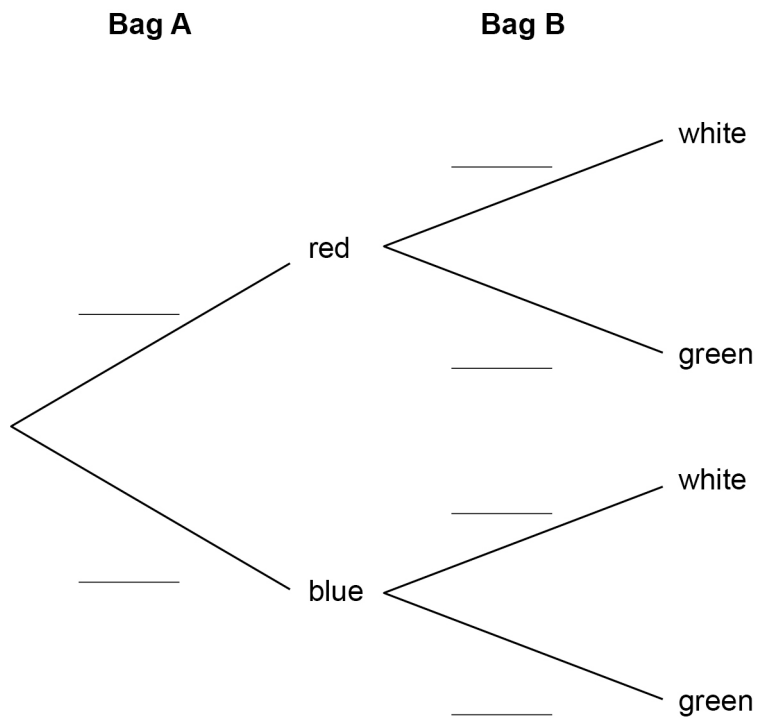
**18** Bag A and bag B contain counters.

**Bag A**  
 $\frac{1}{4}$  are red  
The rest are blue

**Bag B**  
3 are white  
2 are green

**18 (a)** Complete the tree diagram.

**[2 marks]**



**18 (b)** One counter is taken at random from each bag.

Work out the probability that one is red and one is white.

**[2 marks]**

---

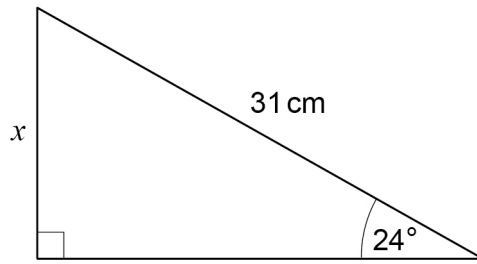


---

Answer \_\_\_\_\_



19

Not drawn  
accuratelyUse trigonometry to work out the value of  $x$ .**[3 marks]**


---



---



---



---



---

 $x =$  \_\_\_\_\_ cm

20

The mass of an iceberg is 2 200 000 kg

This value is a 12% reduction from the **original** mass of the iceberg.Work out the **original** mass of the iceberg.

Give your answer in standard form.

**[3 marks]**


---



---



---



---



---

Answer \_\_\_\_\_ kg



- 21** A chef has a tub of blueberries.  
She wants to  
use all the blueberries  
put the same number of blueberries on each dessert.

$$D = \frac{k}{b}$$

$D$  is the number of desserts.

$b$  is the number of blueberries on each dessert.

- 21 (a)** What does the constant  $k$  represent?

Tick the correct box.

[1 mark]

The number of blueberries in the tub

The number of desserts

The number of blueberries on each dessert

None of the above

- 21 (b)** Complete the table.

[2 marks]

$b$	2	6	
$D$	120		30

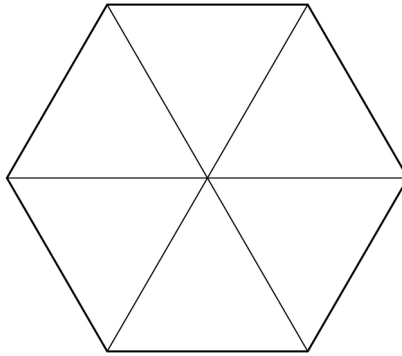


- 22 (a)** A fair spinner has six equal sections, each with the number 5, 6, 7 or 8  
Each number appears at least once.  
 $P(\text{even number}) = P(7)$

Work out  $P(5)$

You may use the blank spinner to help you.

**[3 marks]**



Answer \_\_\_\_\_

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

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
<b>Probability</b>	0.1	0.5	0.2	0.3

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

**[1 mark]**

---



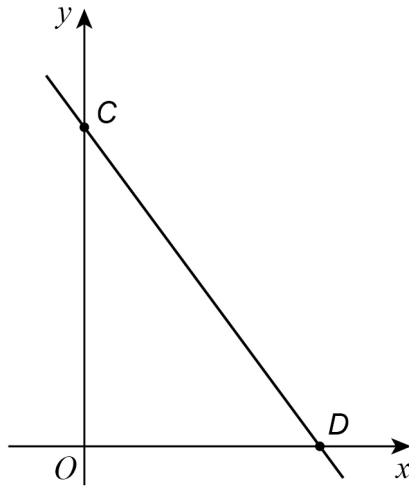
---



---



- 23 (a) Here is a sketch of the graph  $y = -2x + 6$

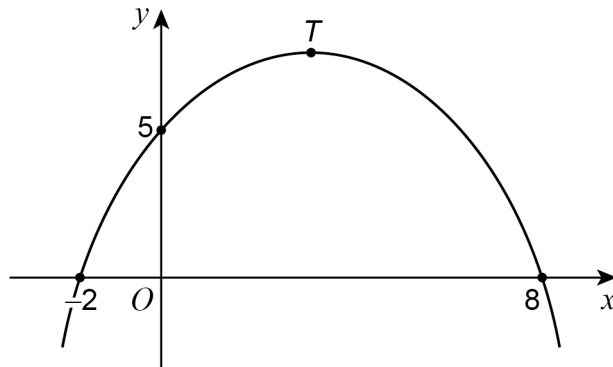


Complete the coordinates of  $C$  and  $D$ .

[2 marks]

$C(0, \quad)$        $D(\quad, 0)$

- 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 turning point,  $T$ , is \_\_\_\_\_



24

Archie flips a biased coin 200 times.

Here is some information about the outcomes after each 50 flips.

<b>Total number of flips</b>	50	100	150	200
<b>Number of heads</b>	10	27	37	52

Work out the best estimate for the probability of flipping a head.

Give a reason for your answer.

**[2 marks]**

Answer \_\_\_\_\_

Reason \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

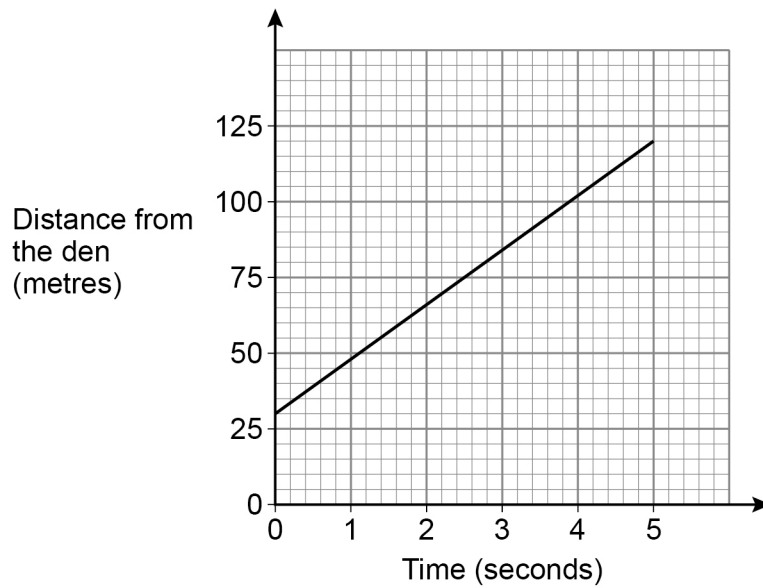
**Turn over for the next question**

**Turn over ►**



25

A lion is sprinting in a straight line away from its den.  
The graph shows the lion's distance from the den.



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

**[3 marks]**

---

---

---

---

---

---

---

---

Answer \_\_\_\_\_ m/s

**END OF QUESTIONS**