AQA

GCSE
MATHEMATICS

F

Foundation Tier   Paper 2 Calculator

Time allowed: 1 hour 30 minutes

Materials

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

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	
TOTAL	

8300/2F

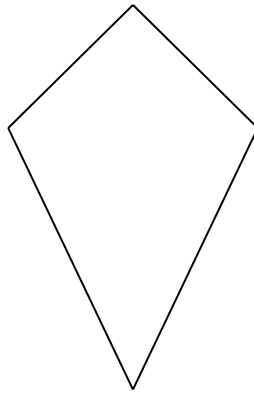**1** Write down **one** cube number less than 10.

[1 mark]

Answer _____

2 (a) Complete the sentence.

A diameter is double the length of a…

[1 mark]

Answer _____

2 (b)

Write down the name of this shape.

[1 mark]

Answer _____

3 Work out $-2 + (-3)$

[1 mark]

_____

Answer _____

4   Write down a suitable **unit** of mass for an apple.

[1 mark]

Answer _____

5 (a)   119 has **two** digits the same.

Write down the next whole number with **two** digits the same.

[1 mark]

Answer _____

5 (b)   987 has all digits different.

Write down the next whole number with **all** digits different.

[1 mark]

Answer _____

6   What direction is a three-quarter turn clockwise from North?

[1 mark]

N
↑
●

Answer _____

8

7 (a) Simplify $3a + a$

[1 mark]

_____

_____

Answer _____

7 (b) Simplify $b \times c$

[1 mark]

_____

Answer _____

7 (c) Expand $2(d + 3)$

[2 marks]

_____

Answer _____

7 (d) Factorise $5x + 10$

[2 marks]

_____

Answer _____

8 Sid and Nancy each get the same pocket money.

Sid spends half of his.
He has £2.50 left.

Nancy spends 30% of hers.

How much does Nancy have left?

[4 marks]

Answer £ _____

9 Here is a list of numbers.

3 2 6 4 9 1

Work out the median value.

[2 marks]

Answer _____

12

10 Here is a bank statement with three missing values.

Date	Description	Credit (£)	Debit (£)	Balance (£)
	Starting balance			37.60
13/04/2022	Salary			1324.83
14/04/2022	Gas bill		150.00	
17/04/2022	Council tax		141.89	

Complete the bank statement.

[3 marks]

11 Jo sold 96 candles.

One quarter of the candles were small.

The rest were large.

Jo made a profit of £5.50 on each small candle.

She made **twice** as much profit on each large candle.

Work out her total profit.

[5 marks]

Answer £ _____

12 Increase 200 by 17%

[2 marks]

Answer _____

10

Turn over ▶

13 Write down the whole number values of x where $3 \leqslant x < 8$

[2 marks]

Answer _____

14 Draw **two** straight lines inside the rectangle to split it into

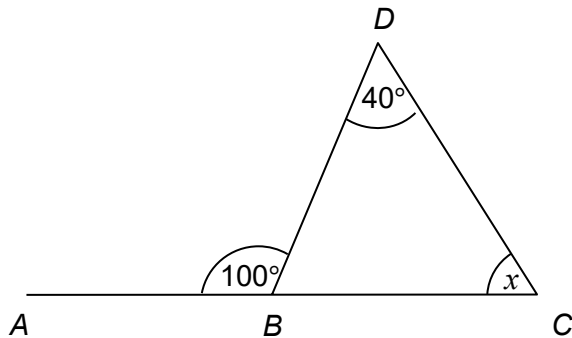1 trapezium

and

2 right-angled triangles.

[2 marks]

You may practise on this diagram.

Put your final answer on this diagram.

15   Yan is trying to work out the size of angle x
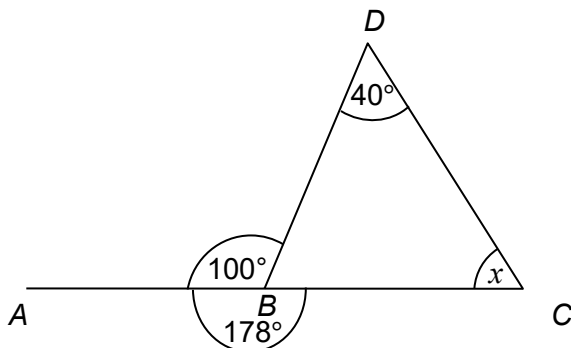

Not drawn accurately

15 (a)   He assumes that *ABC* is a straight line.

What answer should he get?

[2 marks]

Answer _____ °

15 (b)   In fact, angle *ABC* is 178˚, as shown.

Not drawn accurately

What effect does this have on the size of angle x?

[1 mark]

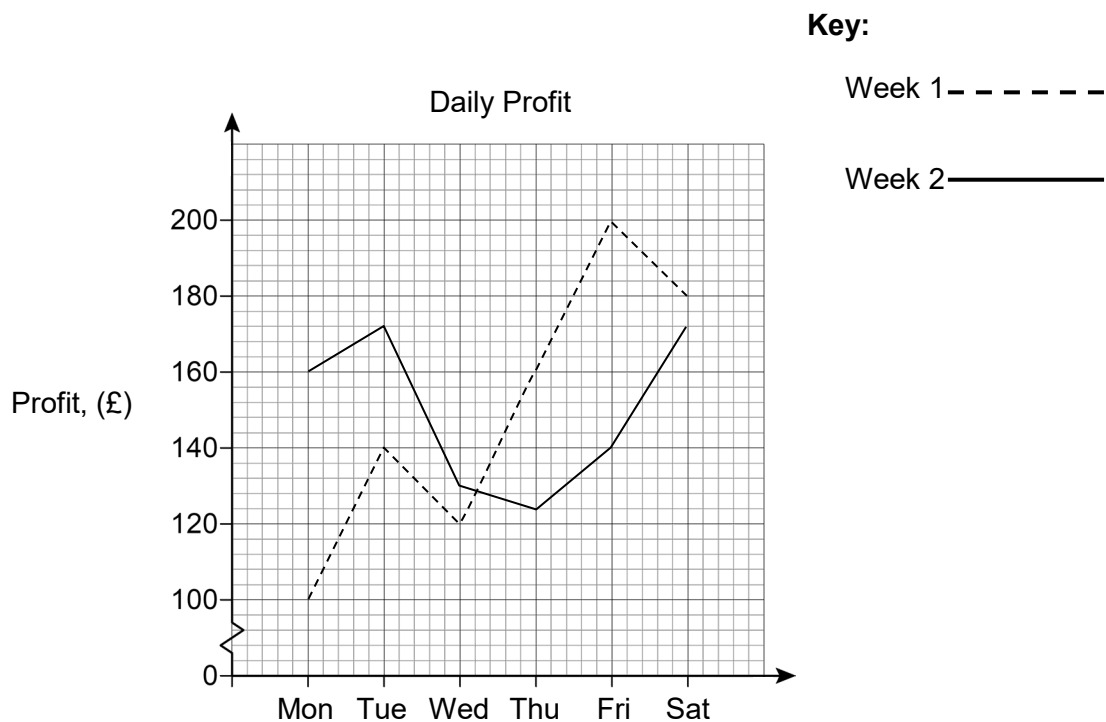It is larger than the answer to part **(a)**   ☐

It is the same as the answer to part **(a)**   ☐

It is smaller than the answer to part **(a)**   ☐

16 The graph below shows a shop's daily profit over two weeks.

Key:

Week 1 – – – – – –

Week 2 ————

Daily Profit

Profit, (£)

16 (a) Write down the profit on Thursday of week 1.

[1 mark]

Answer £ _____

16 (b) The **total** profit on Mondays for the two weeks was £260

Which day had the highest **total** profit for the two weeks?

[2 marks]

Answer _____

16 (c) The shop is closed on Sundays.

The manager decides to close the shop on one other day each week.

Use the graph to decide which day she should close.

Give a reason for your answer.

[2 marks]

Answer _____

Reason _____

_____

_____

16 (d) Ruby says about the graph,

"Friday week 1 is 6 large squares high.

Friday week 2 is 3 large squares high.

So, the profit on Friday week 1 is double Friday week 2."

Is she correct?
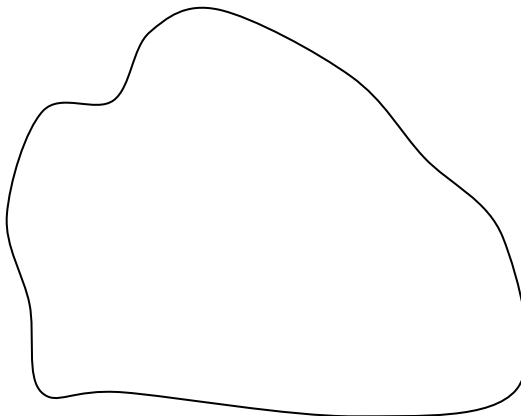
Yes ☐   No ☐

Give a reason for your answer.

[2 marks]

Reason _____

_____

_____

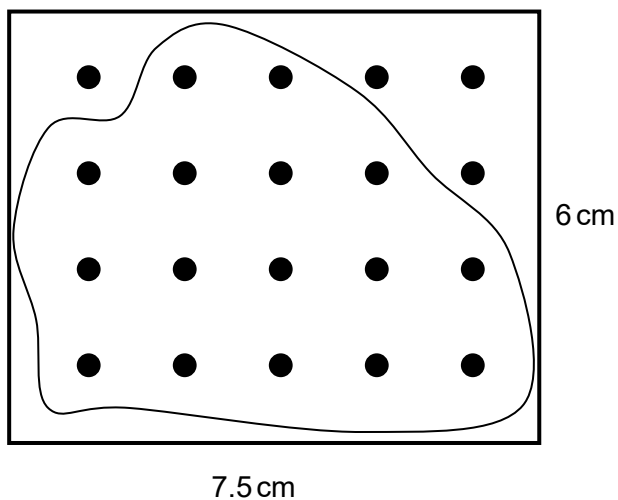**Turn over for the next question**

7

Turn over ▶

17   Here is a shape.

A method to estimate the area of the shape is shown below.

    1) Put the shape onto a rectangular grid of dots.

    2) Write the number of dots in the shape as a fraction of the total number of dots.

    3) Work out this fraction of the area of the rectangle.

6 cm

7.5 cm

17 (a)   Use this method to estimate the area of the shape.

[3 marks]

_____

_____

_____

_____

Answer _____ cm^2

17 (b) How could you improve this method to give a more reliable answer?

[1 mark]

18 The speed of the International Space Station is 27 576 kilometres **per hour**.

18 (a) The station travels 42 600 kilometres in one orbit.

Work out the number of **full** orbits the station does in **one day**.

[3 marks]

Answer _____

18 (b) Convert 27 576 kilometres per hour into metres per second.

[3 marks]

Answer _____ m/s

10

Turn over ▶

19   Croc is simplifying $6n^5 \times 2n^4$

His answer is $8n^{20}$

Identify the **two** mistakes he has made.

[2 marks]

Mistake 1 _____

_____

_____

Mistake 2 _____

_____

_____

20 (a)   Expand and simplify $(x + 6)(x - 3)$

[2 marks]

_____

_____

_____

Answer _____

20 (b)   Solve $(x - 9)(x + 4) = 0$

[1 mark]

_____

_____

$x =$ _____ or _____

21 Write 225 as the product of its prime factors.

[2 marks]

Answer _____

22 Volume of a sphere = $\frac{4}{3}\pi r^3$

A steel sphere, radius 3 cm, is shown.
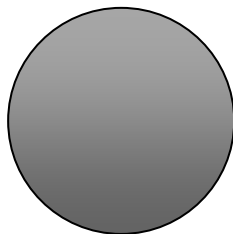
22 (a) Work out the volume of the sphere.

[2 marks]

Answer _____ cm^3

22 (b) The density of the steel is 5.2 grams/cm^3

Work out the mass of the sphere.

[2 marks]

Answer _____ grams

11

23 Daniel invests £2500 for 3 years.

The compound interest rate is 2.9% per year.

23 (a) Which calculation works out the total value after 3 years?

Circle your answer.

[1 mark]

£2500 × 1.029 × 3   £2500 × 2.9 × 3

£2500 × 2.9³   £2500 × 1.029³

23 (b) Anna invests £2500 for 3 years.

The interest rate is

        3.5% for the first year

        2.3% for the second year onwards.

Whose investment is worth more after 3 years?
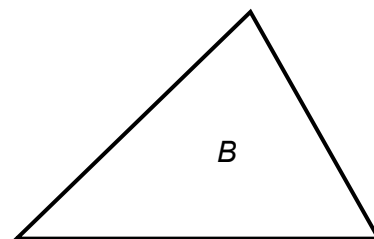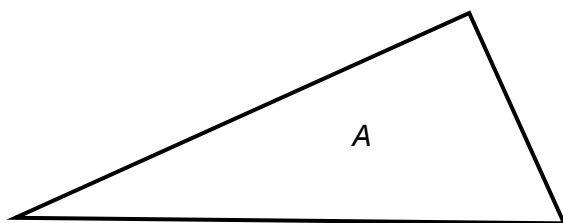
You **must** show your working.

[4 marks]

Answer _____

24 The angles in triangle *A* are in the ratio   1 : 2 : 5

The angles in triangle *B* are in the ratio   3 : 4 : 5

Not drawn
accurately

Anisha says,

"The end number in each ratio is 5, so the biggest angle in each triangle must
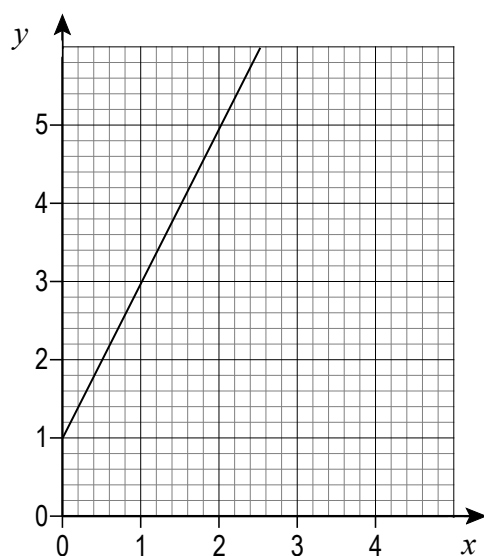be equal."

Is she correct?

Yes ☐   No ☐

Show working to support your answer.

[2 marks]

7

Turn over ▶

25   Here is a graph of a straight line.

25 (a)   Work out the equation of the line.

[2 marks]

Answer _____

25 (b)   Work out the coordinates of the y-intercept of the line that

         is parallel to the line in part **(a)**

and   passes through (2, 2)

[2 marks]

Answer (_____ , _____)

26 A 10 km race took place.

Information about the times achieved by women are in the table.

Time (minutes)	Midpoint	Number of women	
$50 \leqslant m < 60$		1	
$60 \leqslant m < 80$		6	
$80 \leqslant x < 100$		13	
		Total $= 20$	

The mean time achieved by **men** was 81 minutes.

Compare the mean times achieved by men and women.

[4 marks]

END OF QUESTIONS

8