AQA

Please write clearly in block capitals.

Centre number ⬜⬜⬜⬜⬜   Candidate number ⬜⬜⬜⬜

Surname _____

Forename(s) _____

Candidate signature _____

GCSE
MATHEMATICS

F

Foundation Tier   Paper 2   Calculator
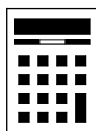

Date of Exam   Morning   Time allowed: 1 hour 30 minutes

Materials

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

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.

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

1 Circle the cube number.

[1 mark]

3   8   9   16

2 On a circle, which of these is the longest?

Circle your answer.

[1 mark]

chord   circumference   diameter   radius

3 Add −5 and −3

Circle your answer.

[1 mark]

−8   −2   2   8

4 Circle the unit of mass.

[1 mark]

millimetres   grams   litres   degrees

5 Write down **all** the whole numbers between 91 and 120 that have **exactly two** digits the same.

[2 marks]

Answer _____

6 Katy is facing North.

She does a three-quarter turn anti-clockwise.

She then turns 135° clockwise.

What direction is she facing now?

[2 marks]

N

Answer _____

Turn over ►

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7 Here is a bank statement with three missing values.

Date	Description	Credit (£)	Debit (£)	Balance (£)
	Starting balance			37.60
13/04/2017	Salary			324.85
14/04/2017	Gas bill		50.00	
17/04/2017	Council tax		61.84	

Complete the bank statement.

[3 marks]

8 (a)   Simplify $3a + 7b - a + 4b$

[2 marks]

Answer _____

8 (b)   Expand $4(2d + 5)$

[2 marks]

Answer _____

8 (c)   Factorise $15x + 18y$

[1 mark]

Answer _____

Turn over for the next question

Turn over ►

9   Jack and Liam each get the same pocket money.

Jack spends 75% of his.
He has £2 left.

Liam spends 40% of his.

How much does Liam have left?

[4 marks]

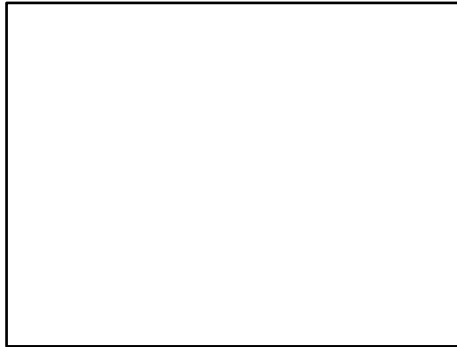Answer £ _____

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

1 trapezium

and

2 right-angled triangles.

[2 marks]

Practise on this diagram.

Put your answer on this diagram.
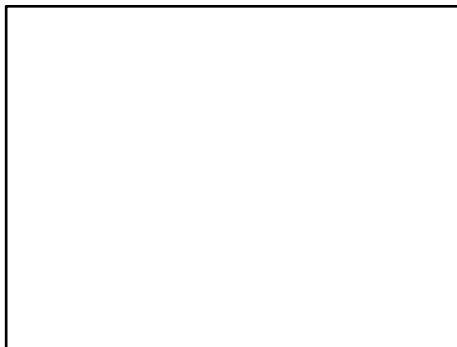
Turn over for the next question

Turn over ▶

11 Jo sold 132 mugs.

One quarter of the mugs were small.

The rest were large.

Jo made a profit of £2.45 on each small mug.

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

Work out her total profit.

[6 marks]

Answer £ _____

12 Write down the integer values of x where $1 \leqslant x < 7$

[2 marks]

Answer _____

13 Increase 400 by 37%

[2 marks]

Answer _____

14 What is the **maximum possible** order of rotational symmetry of a quadrilateral?

Circle your answer.

[1 mark]

1   2   4   8

Turn over for the next question

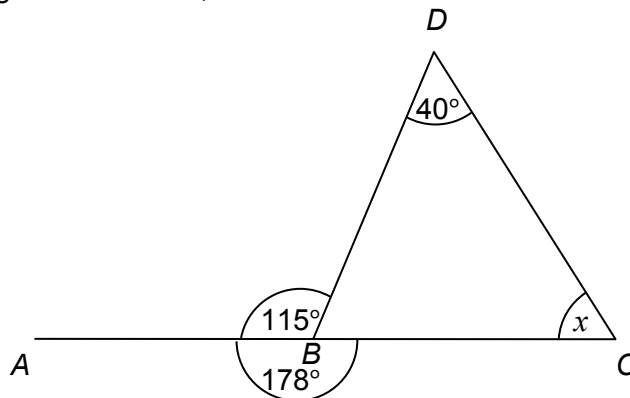**15** Han is trying to work out the size of angle x.
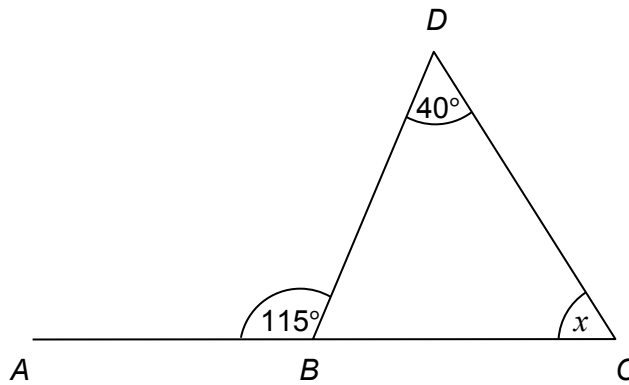
Not drawn
accurately

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

What answer should he get?

[2 marks]

Answer _____ degrees

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]

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

16 (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 _____

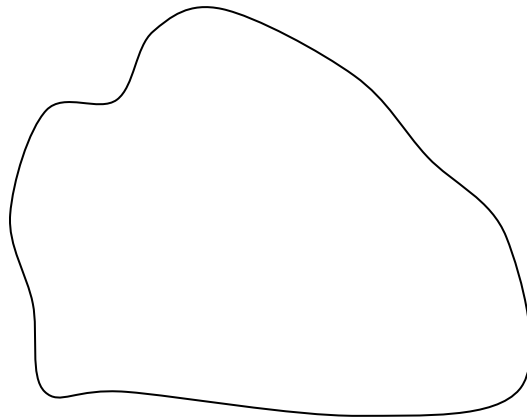**16 (b)** Convert 27 576 kilometres per hour into metres per second.

[3 marks]

Answer _____ m/s

Turn over for the next question
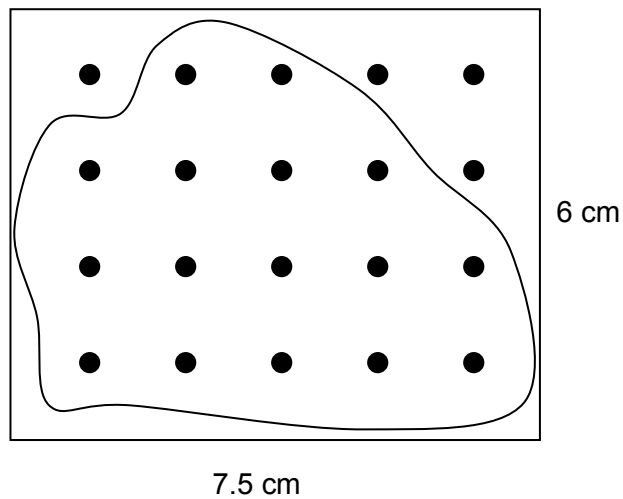
17 Here is a shape.

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

Put the shape onto a rectangular grid of dots.

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

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.

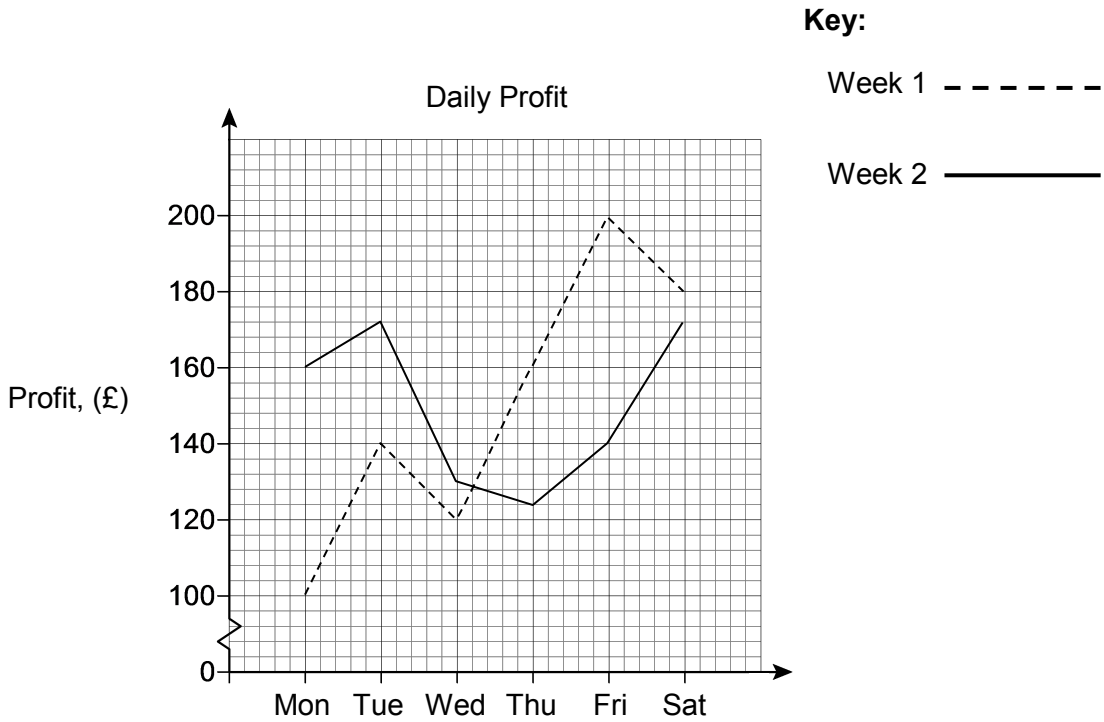[3 marks]

Answer _____ cm^2

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

[1 mark]

Turn over for the next question

Turn over ►

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

Key:

Week 1 – – – – – –

Week 2 ─────

Daily Profit

Profit, (£)

18 (a) Circle the profit on Tuesday of week 2

[1 mark]

£140   £163   £166   £172   £178

18 (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 _____

18 (c) The manager decides to close the shop on one day each week.

Use the graph to decide which day she should close.

Give a reason for your answer.

[2 marks]

Answer _____

Reason _____

_____

_____

18 (d) Ruby says about the graph,

"Friday week 1 is 6 large squares high.

Friday week 2 is 3 large squares high.

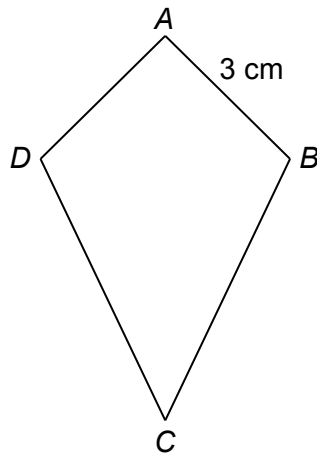So, the profit on Friday week 1 is double Friday week 2"

Is she correct?

Give a reason for your answer.

[2 marks]

_____

_____

_____

Turn over for the next question

19 The perimeter of kite *ABCD* is 24 cm

A

3 cm

Not drawn accurately

D

B

C

The length of side *AB* is 3 cm

Work out the length of side *CD*.

Circle your answer.

[1 mark]

3 cm   8 cm   9 cm   21 cm
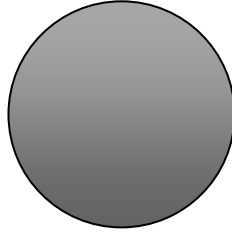
20 Kris is simplifying $3n^5 \times 2n^4$

His answer is $5n^{20}$

Identify any mistakes he has made.

[2 marks]

_____

_____

_____

_____

_____

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

A steel sphere, radius 9 cm, is shown.

21 (a) Work out the volume of the sphere.

[2 marks]

Answer _____ cm^3

21 (b) The density of the steel is 7.8 grams/cm^3

Work out the mass of the sphere.

[2 marks]

Answer _____ grams

Turn over for the next question

Turn over ►

22 Dev invests £1500 for 2 years.

The compound interest rate is 1.6% per year.

22 (a) Which calculation works out the total value after 2 years?

Circle your answer.

[1 mark]

£1500 × 1.6 × 2   £1500 × 1.6^2

£1500 × 1.016 × 2   £1500 × 1.016^2

22 (b) Emma invests £1500 for 2 years.

The interest rate is

    1.8% for the first year

    1.3% for the second year.

Whose investment is worth more after 2 years?

You **must** show your working.

[4 marks]

Answer _____

23 (a) Expand and simplify $(x + 5)(x - 4)$

[2 marks]
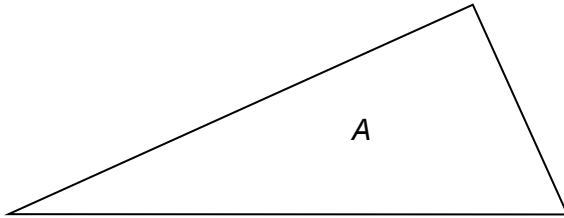
Answer _____

23 (b) Solve $(x - 8)(x + 7) = 0$

[1 mark]

Answer _____

24 Write 225 as the product of its prime factors.

[2 marks]

Answer _____

Turn over ►

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25 The angles in triangle *A* are in the ratio   1 : 2 : 3

The angles in triangle *B* are in the ratio   4 : 5 : 6
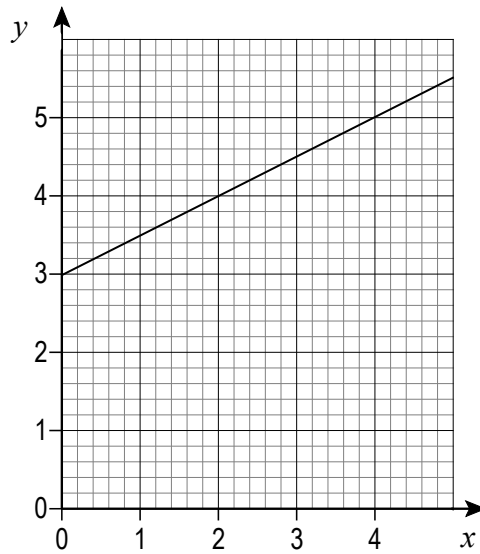
Not drawn accurately

A

B
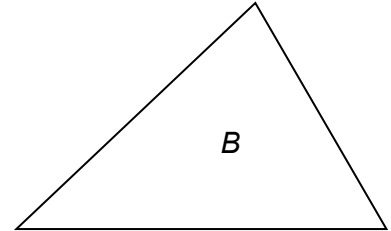
Jack says,

"The middle number in each ratio is one third of the total,
so one of the angles in each triangle is 60 degrees"

Is he correct?

Show working to support your answer.

[2 marks]

26 Here is the graph of a straight line.

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

[2 marks]

Answer _____

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

is parallel to the line in part (a)

and passes through (4, 1)

[2 marks]

Answer (_____ , _____)

Turn over for the next question

Turn over ▶

27 A charity collection was made.

Information about the amounts given by men is shown in the table.

Amount, x (£)	Midpoint	Number of men	
$0 \leqslant x < 5$		11	
$5 \leqslant x < 10$		7	
$10 \leqslant x < 15$		2	
		Total = 20	

The mean amount given by **women** was £6.30 per person.

Compare the mean amounts given by men and women.

[4 marks]

END OF QUESTIONS