AQA

Functional Skills Level 2 MATHEMATICS
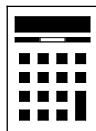
Paper 2 Calculator

Monday 9 January 2023   Afternoon   Time allowed: 1 hour 30 minutes

Materials

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

For Examiner's Use	
Question	Mark
1–6	
7	
8	
9	
10	
TOTAL	

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.
- 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.
- State the units of your answer where appropriate.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 60.
- You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer book.
- If your calculator does not have a π button, take the value of π to be 3.142

Advice

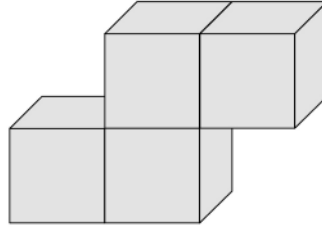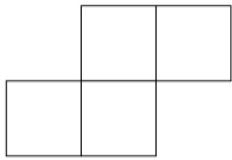In all calculations, show clearly how you work out your answer.

Section A

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

1 Here is a solid made from four cubes.

Circle the plan view of the solid.

[1 mark]

2 Write the number   2 307 049   in words.

[1 mark]

_____

_____

3 Which is closer in value to 0.5

0.379 or 0.614 ?

You **must** show your working.

[2 marks]

_____

_____

_____

_____

Answer _____

4

Surface area of a sphere = $4\pi r^2$

Work out the surface area of a sphere with a radius of 2.3 cm
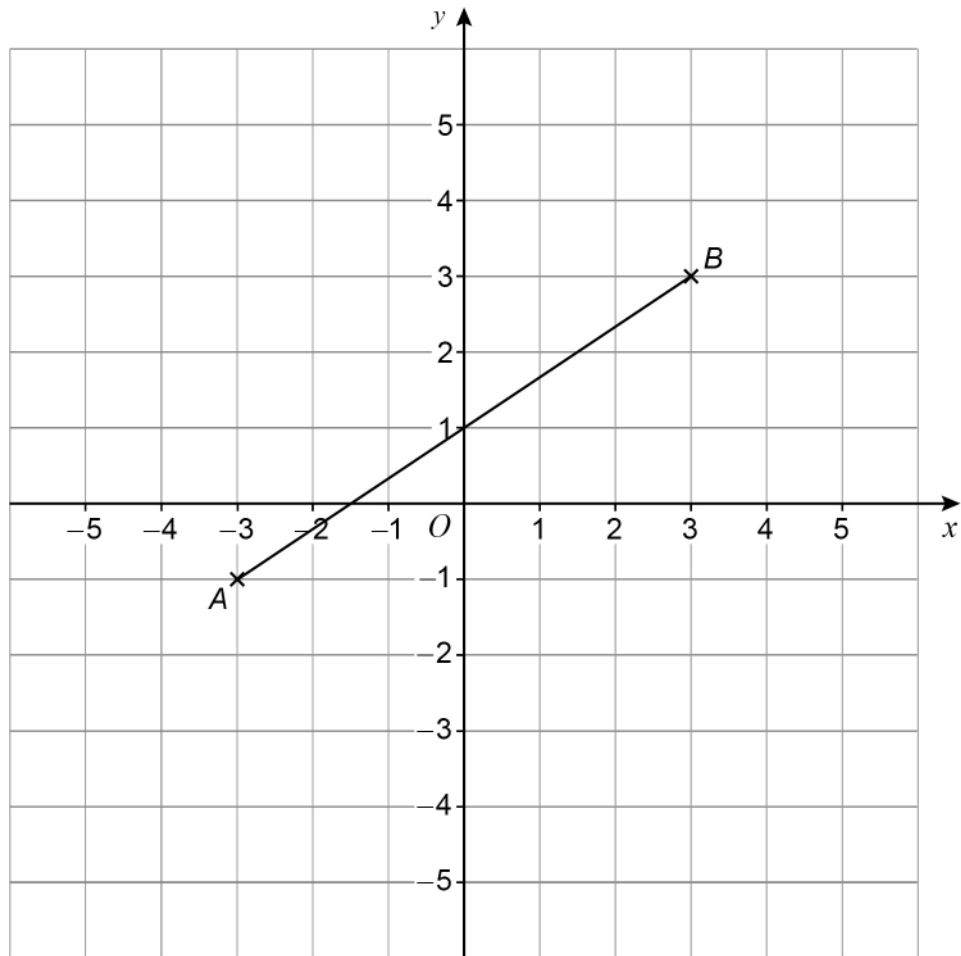State the units of your answer.

[3 marks]

_____

_____

_____

_____

Answer _____

Turn over ▶

5

Point *C* is the midpoint of line *AB*.

Plot point *C* on the grid and write down the coordinates of *C*.

[2 marks]

Answer (_____ , _____)

6 The table contains grouped data.

x	Frequency	Mid-point	
$0 < x \leqslant 20$	7	10	
$20 < x \leqslant 40$	9	30	
$40 < x \leqslant 50$	4	45	
	Total $= 20$		

Work out an estimate of the mean of x.

[3 marks]

Answer _____

Turn over for Section B

12

Section B

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

7   **School office**

Ashley works in a school office.

7 (a)   Ashley needs 29 book bags.

He sees these offers online.

Best book bags	**Bags and stuff**
Book bags £4.99 each	Book bags reduced to £4.25 each
For every 7 you buy you get an extra 1 free	Delivery charge £3.90 per order
Free delivery	

Ashley wants the cheapest total price for the 29 bags and delivery.

Which offer should he choose?
You **must** show your working.

[5 marks]

_____

_____

_____

_____

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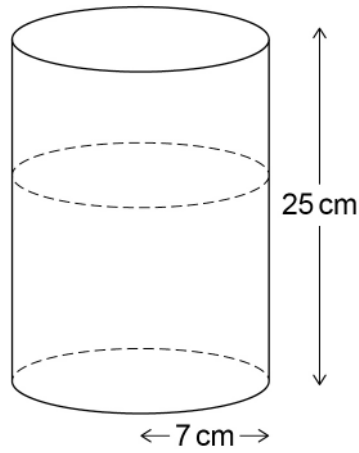
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7 (b) Ashley needs to put drinking water into 40 jugs before break time.

Each jug

       is a cylinder with radius 7 cm and height 25 cm

       will be $\frac{3}{5}$ full.

Water flows out of the tap at 13 litres per minute.

$1000 \, \text{cm}^3 = 1$ litre

Can Ashley put the right amount of water into all 40 jugs in 6 minutes?
You **must** show your working.

[6 marks]

11

Turn over ▶

8   **Lifeguard**

Talia is a lifeguard at a swimming pool.

8 (a)   One morning, Talia checked the water temperature in the pool each hour.

Time	8 am	9 am	10 am	11 am
Temperature in °F	75	80	81	87

The formula to convert Fahrenheit (F) into Celsius (C) is

$$C = \frac{5}{9}(F - 32)$$

What time was the first check where the water temperature was above 26°C?
You **must** show your working.

[3 marks]

Answer _____

8 (b)   There are 90 people in the pool.

number of adults : number of children = 3 : 2

One lifeguard is needed for every 10 children.

How many lifeguards are needed for the children in the pool?

[4 marks]

Answer _____

7

Turn over for the next question

Turn over ▶

9 **Hedgehogs**

Aahad works for a charity that rescues hedgehogs.

9 (a) The charity has four main costs each month.

	Cost per month
Straw	£25
Feed	£39
Electricity	£68
Vets	£235

From next month the costs are changing.

- Straw will be free from a local farm

- Feed is increasing by $\frac{1}{6}$

- Electricity is increasing by £324 a year

- The cost of the vets will be £3090 a year.

The charity receives a new monthly donation of £30

Is the new donation enough to pay for the **increase** in total monthly costs?
You **must** show your working.

[5 marks]

9 (b) The charity needs a new building for the hedgehogs.

The new building will cost £250 000

The charity invested £245 000 in a bank account 2 years ago.

The account pays 1.2% compound interest each year.

Is there enough money in the bank account to pay for the building?
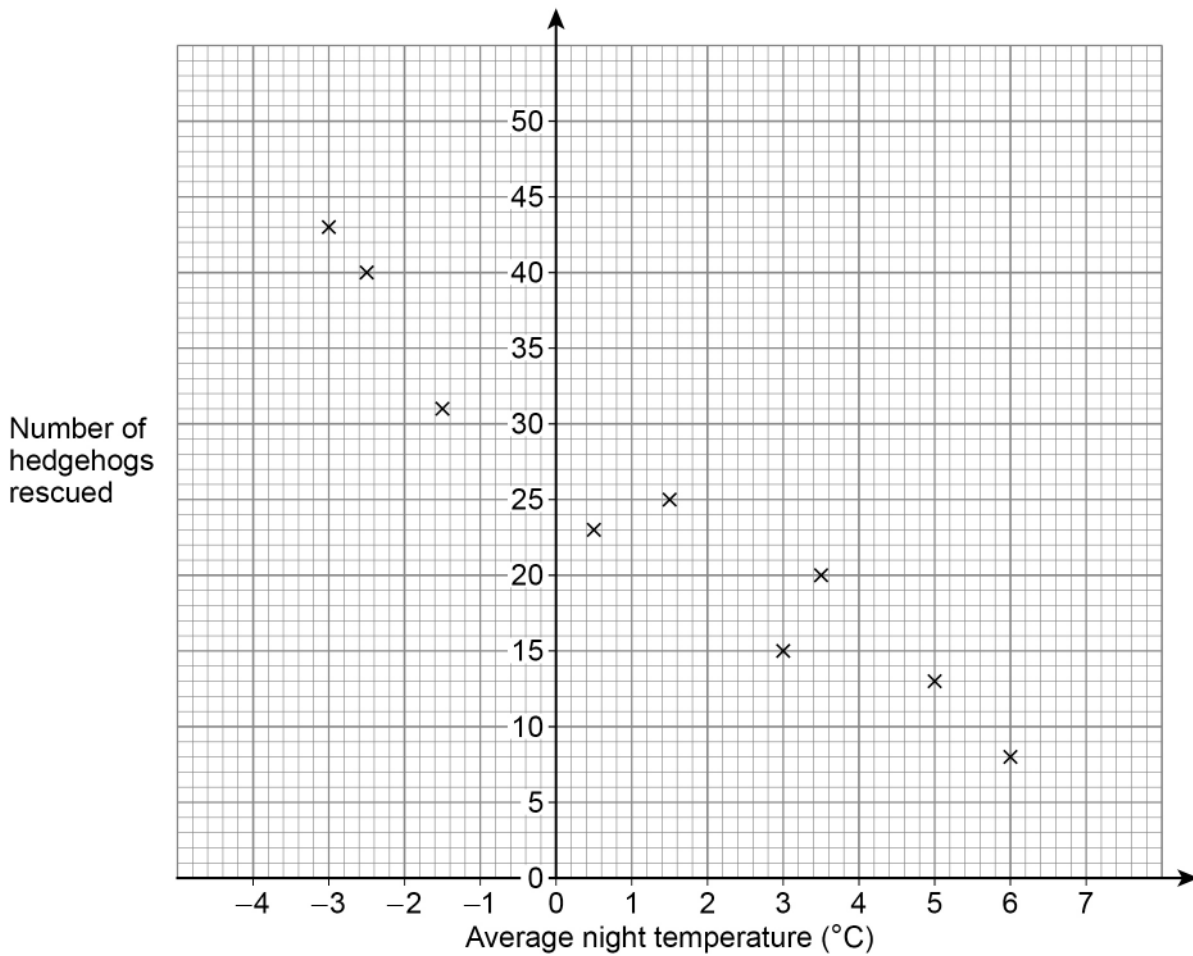You **must** show your working.

[3 marks]

_____

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_____

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_____

Question 9 continues on the next page

Turn over ▶

Each week Aahad records the number of hedgehogs rescued and the average night temperature that week.

The scatter diagram shows information for the last 9 weeks.

9 (c) Describe the relationship between average night temperature and number of hedgehogs rescued.

[1 mark]

9 (d) In week A the average night temperature was −2˚C

In week B the average night temperature was 4˚C

Use the scatter diagram to estimate how many **more** hedgehogs were rescued in week A than in week B.

You **must** show your working, some of which should be on the diagram.

[4 marks]

Answer _____

13

Turn over for the next question

Turn over ▶

10   **Housework**

David is doing housework.

10 (a)   David is washing clothes.

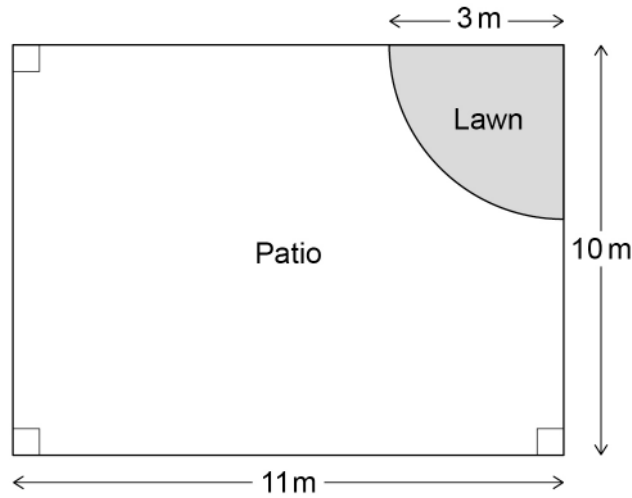| Washing powder	Washing liquid
3900 g	1540 ml
Use 65 g per wash	Use 35 ml per wash

David says,

"I can do **at least** 32% more washes with the powder than the liquid."

Is he correct?

You **must** show your working.

[5 marks]

10 (b) David is going to clean the patio.

← 3 m →

Lawn

Not drawn accurately

Patio

10 m

← 11 m →

The lawn is a quarter circle with radius 3 m

Each bottle of cleaner

cleans 15 m^2 of patio

costs £1.95

Work out the cost of the bottles of cleaner that David needs to clean the patio.

You **must** show your working.

[6 marks]

Answer £ _____

Question 10 continues on the next page

Turn over ▶

10 (c) David makes a cleaning spray using vinegar and water.

The cleaning spray needs to be

700 ml in total

45% vinegar.

David has put **half a pint** of vinegar in the spray bottle.

How much **more** vinegar and how much water does he need to add?
Use 1 pint = 568 ml
State the units of your answers.

[6 marks]

Vinegar _____

Water _____

17

END OF QUESTIONS

There are no questions printed on this page

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ANSWER IN THE SPACES PROVIDED

Question number	**Additional page, if required.** **Write the question numbers in the left-hand margin.**

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Do not write outside the box

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