

A



**Surname** \_\_\_\_\_

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

**Centre Number** \_\_\_\_\_

**Candidate Number** \_\_\_\_\_

**Candidate Signature** \_\_\_\_\_

**I declare this is my own work.**

## **Functional Skills Level 2**

# **MATHEMATICS**

**Paper 2 Calculator**

**8362/2**

**Monday 9 January 2023**

**Afternoon**

**Time allowed: 1 hour 30 minutes**

**At the top of the page, write your surname and forename(s), your centre number, your candidate number and add your signature.**

**[Turn over]**

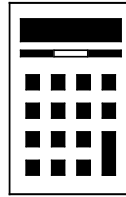


J A N 2 3 8 3 6 2 2 0 1

**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 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  $\pi$  button, take the value of  $\pi$  to be 3.142

**ADVICE**

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

**DO NOT TURN OVER UNTIL TOLD TO DO SO**



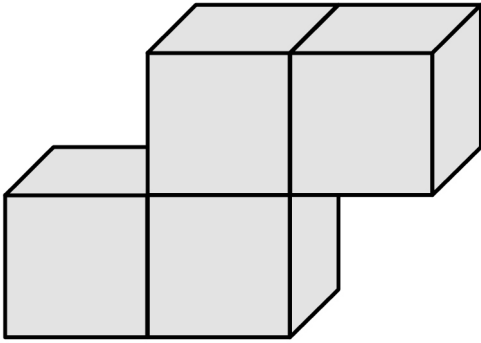
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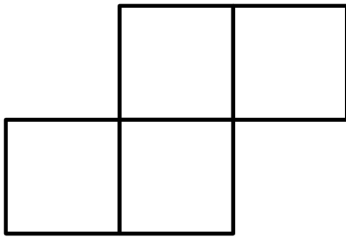
**SECTION A**

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]



[Turn over]



2 Write the number 2 307 049 in words. [1 mark]

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3 Which is closer in value to 0.5

0.379 or 0.614 ?

You MUST show your working. [2 marks]

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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]

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Answer \_\_\_\_\_

[Turn over]



- 5 Point  $C$  is the midpoint of line  $AB$ , on the opposite page.

Plot point  $C$  on the grid and write down the coordinates of  $C$ . [2 marks]

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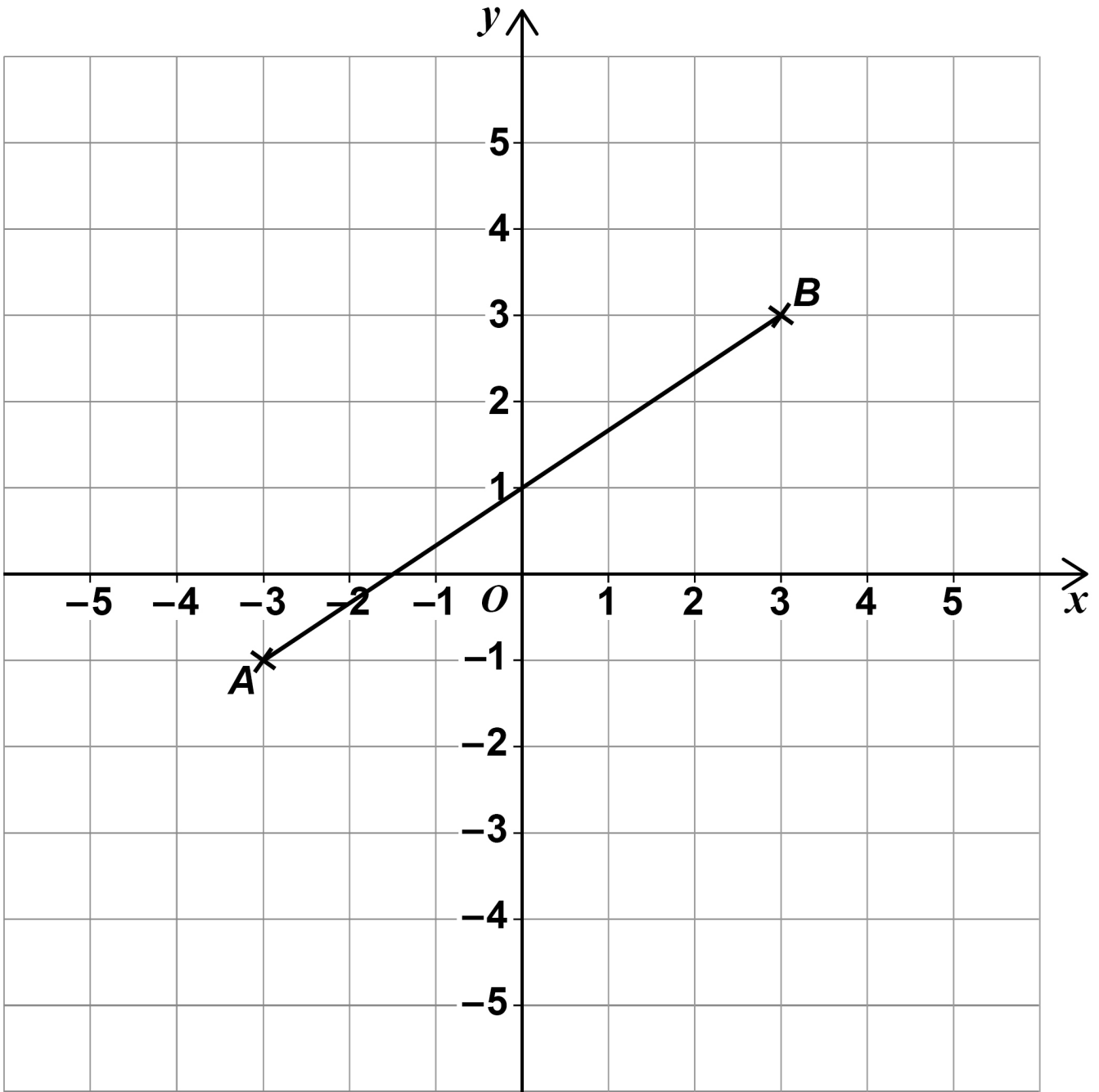
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Answer ( \_\_\_\_\_ , \_\_\_\_\_ )







[Turn over]



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6 The table contains grouped data.

$x$	FREQUENCY	MID-POINT	
$0 < x \leq 20$	7	10	
$20 < x \leq 40$	9	30	
$40 < x \leq 50$	4	45	
	Total = 20		

Work out an estimate of the mean of  $x$ . [3 marks]

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Answer \_\_\_\_\_

[Turn over]



**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**

**Book bags £4.99 each**

**For every 7 you buy**

**you get an extra 1 free**

**Free delivery**

**BAGS AND STUFF**

**Book bags reduced to £4.25 each**

**Delivery charge £3.90 per order**

**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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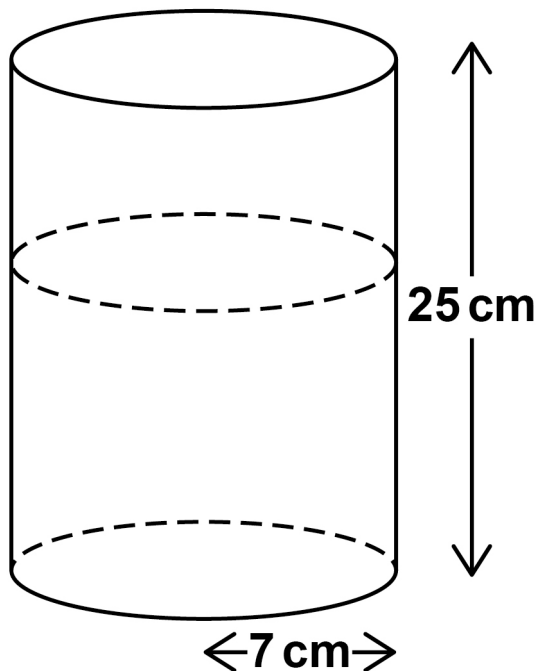


- 7 (b) Ashley needs to put drinking water into 40 jugs before break time.

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.

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

Can Ashley put the right amount of water into all 40 jugs in 6 minutes?

You **MUST** show your working. [6 marks]





**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]

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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]

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Answer \_\_\_\_\_

[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]



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[Turn over]



**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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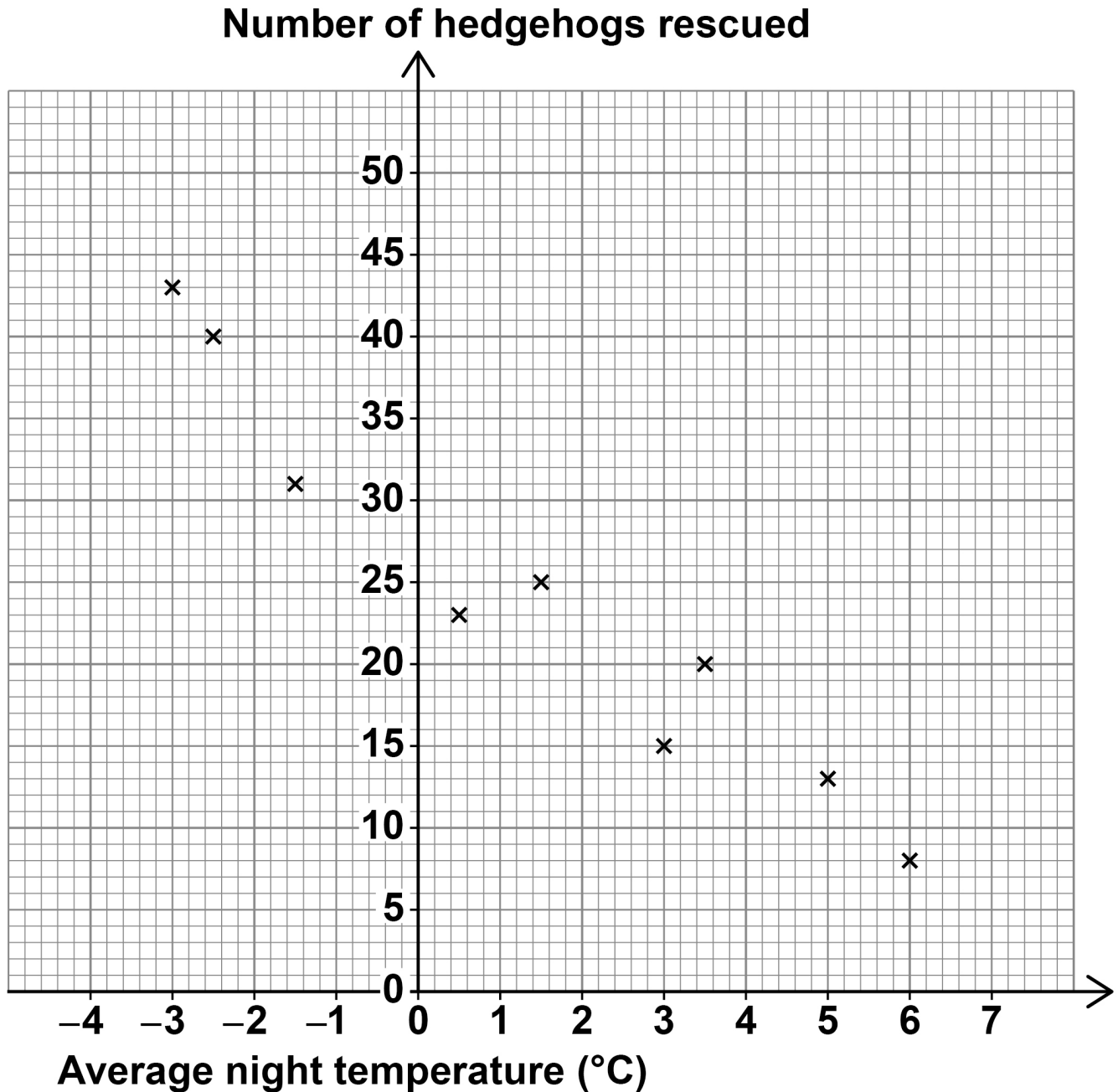
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**[Turn over]**



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]**

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**[Turn over]**

**9 (d) In week A the average night temperature was  $-2^{\circ}\text{C}$**

**In week B the average night temperature was  $4^{\circ}\text{C}$**

**Use the scatter diagram, on page 24, 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, on page 24. [4 marks]**

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Answer \_\_\_\_\_

[Turn over]

13



**10 HOUSEWORK**

**David is doing housework.**

**10 (a) David is washing clothes.**

**WASHING POWDER**

**3900g**

**Use 65g per wash**

**WASHING LIQUID**

**1540ml**

**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]**

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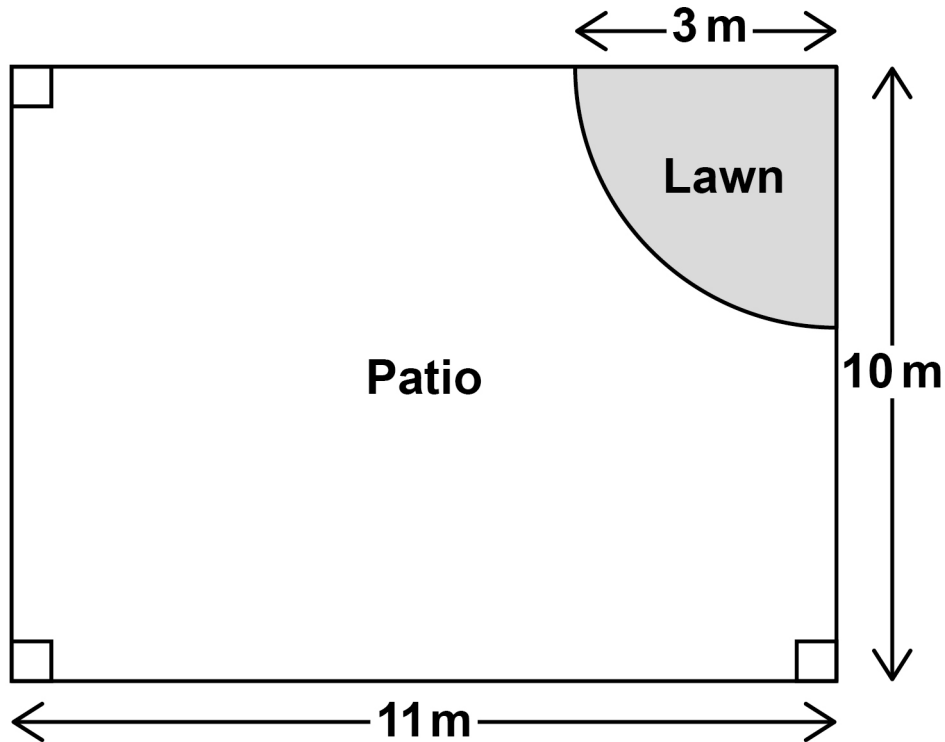
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**[Turn over]**



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

The diagram is not drawn accurately.



The lawn is a quarter circle with radius 3 m

Each bottle of cleaner

cleans  $15 \text{ m}^2$  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]



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Answer £ \_\_\_\_\_

[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]

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Vinegar \_\_\_\_\_

Water \_\_\_\_\_

**END OF QUESTIONS**



**Additional page, if required.**

**Write the question numbers in the left-hand margin.**


Additional page, if required.

Write the question numbers in the left-hand margin.


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For Examiner's Use	
Question	Mark
1-6	
7	
8	
9	
10	
<b>TOTAL</b>	

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