

Please write clearly in	n block capitals.	
Centre number	Candidate number	
Surname		
Forename(s)		
Candidate signature		
	I declare this is my own work.	

# 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.



#### 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.

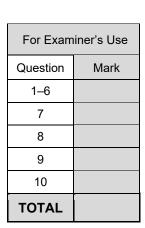
#### Information

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

#### **Advice**

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





	Section A	
	Answer <b>all</b> 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 2307049 in words.	1 mark]



or 0.614?
sphere = $4\pi r^2$
a radius of 2.3 cm
•





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Plot point	C on the	grid and w	vrite down th	e coordi	nates of	C.		[2
		Ansv	ver (			)		



12

**6** The table contains grouped data.

x	Frequency	Mid-point	
0 < <i>x</i> ≤ 20	7	10	
20 < <i>x</i> ≤ 40	9	30	
40 < <i>x</i> ≤ 50	4	45	
	Total = 20		

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

**Turn over for Section B** 

Answer \_\_\_\_\_



#### **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 <b>must</b> show your working.	[5 marks]

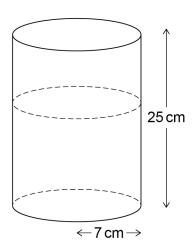


7 (b) Ashley needs to put drinking water into 40 jugs before break time.

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.

16	marks
ĽΟ	IIIai No

11



# 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	9am	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  $^{\circ}\text{C}$ ? You  $\pmb{\text{must}}$  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		

Turn over for the next question



## 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 <b>must</b> show your working.	
	roa mast snow your working.	[3 marks]

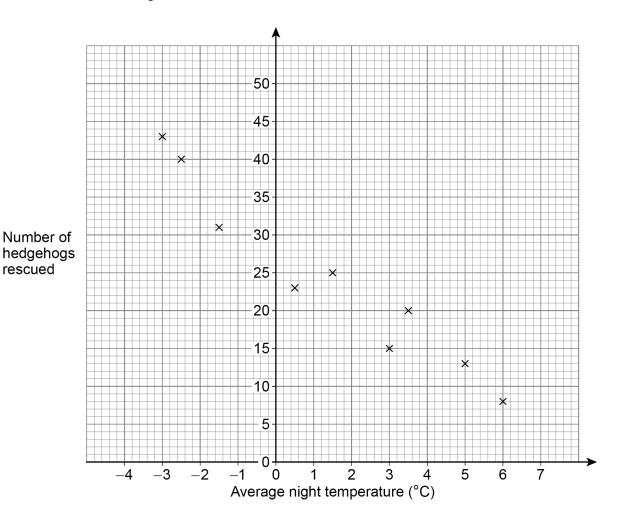
Question 9 continues on the next page



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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	outside box
	. ,	In week B the average night temperature was 4°C	
		Use the scatter diagram to estimate how many <b>more</b> hedgehogs were rescued in week A than in week B.	A
		You <b>must</b> show your working, some of which should be on the diagram.	
		[4 marks	]
			-
			_
			-
			_
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		Answer	13

Turn over for the next question

10	Housework	
	David is doing housework.	
10 (a)	David is washing clothes.	
	Washing powder 3900 g Use 65 g per wash	Washing liquid 1540 ml Use 35 ml per wash
	David says,  "I can do at least 32% more version in the correct?  You must show your working.	washes with the powder than the liquid."  [5 marks]



← 3 m →  Lawn	Not drawn accurately				
Patio 10 m					
<					
The lawn is a quarter circle with radius 3 m					
Each bottle of cleaner					
cleans 15 m <sup>2</sup> of patio					
costs £1.95					
Work out the cost of the bottles of cleaner that David needs to clean th	ie patio.				
You <b>must</b> show your working.	[6 ma				

Answer £

Question 10 continues on the next page



10 (c)	David makes a cleaning spray using vinegar and water.		out
	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 <b>more</b> 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		1
	END OF QUESTIONS		



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



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