

Please write clearly in	block capitals.	
Centre number	Candidate number	
Surname		
Forename(s)		
Candidate signature		

# Functional Skills Certificate FUNCTIONAL MATHEMATICS

Level 2

Wednesday 16 May 2018

Morning

Time allowed: 1 hour 30 minutes

#### Materials

For this paper you must have:

- a calculator
- mathematical instruments
- a copy of the Data Book (Examination) (enclosed).

#### 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.
- 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.
- Evidence of checking is specifically assessed in Questions 1(a) and 4(b).
   These questions are indicated with a †.

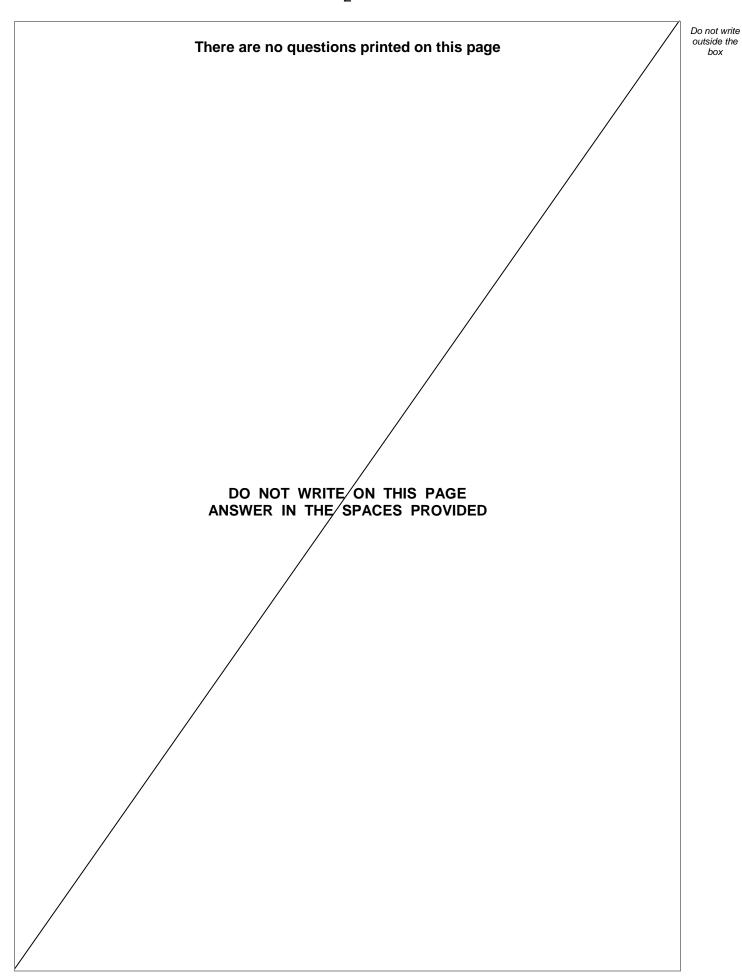
#### **Advice**

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



For Examiner's Use		
Question	Mark	
1		
2		
3		
4		
TOTAL		







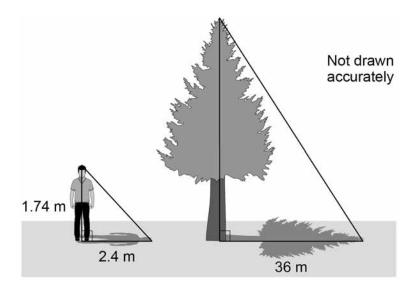
# Answer all questions in the spaces provided.

## 1 Winset Park

There is a data sheet for Winset Park.

Jeff works in Winset Park.

**†1 (a)** Jeff wants to work out the height of this tree.



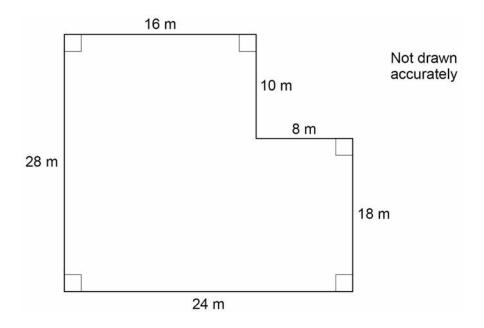
[2 marks]
[1 mark]

Turn over ▶



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Jeff is designing a new playground for the park. Here is a sketch of the playground.



1 (b)	Show that the area of the playground is 592 m <sup>2</sup>	[2 marks]



1 (c) Jeff wants a safe surface for the playground. He decides to use woodchips.



Work out the cheapest possible cost. Include the number of each size of bag Jeff needs to buy.

[6 marks]

Turn over ▶



1 (d) The table shows the items Jeff wants for the playground.

	Position	Space needed for each item	
1 climbing frame	Anywhere	5 m by 5 m square	
2 swing sets	At least 1 in the part nearer the north end	8 m by 4 m rectangle	
3 rockers	All in the part nearer the south end	2 m by 2 m square	
1 roundabout	Anywhere	6 m diameter circle	
1 sandpit	In the south-west corner	4 m by 2 m rectangle	

Show a possible design on the scale drawing opposite.

[5 marks]



Do not write outside the box Scale: 1 cm represents 2 m North South

Turn over ▶

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## 2 Garden birds

Here are some birds eating a fat cake.



Jenny mixes bird feed and lard to make fat cakes.





Bird feed

In a fat cake, the weight of bird feed and the weight of lard are in the ratio 2:1

2 (	(a)	Each f	fat cake	weighs	120 grams.

Show that Jenny needs 80 grams of bird feed for each fat cake.	[2 marks]

2 (b)	Jenny wants to make 300 fat cakes.	
	She wants $\frac{3}{4}$ of the bird feed to be nuts.	
	Nuts cost £3.20 per kilogram.	
	Packs of lard weigh 250 grams and cost 39p each.	
	Jenny says,	
	"For 300 fat cakes, in total the nuts and lard will cost less than £75"	
	Is she correct?	
	You <b>must</b> show your working.	[8 marks]
		[o iliai ks]



2 (c) One day, 100 students at Jenny's school took part in a survey.
They each counted the number of sparrows in their garden at 8 am
Here are the results.

Number of sparrows	Frequency
2	3
3	14
4	27
5	46
6	10

Work out the mean number of sparrows.  Give your answer to 1 decimal place.	[4 marks]	

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2	Carrina	
3	Saving	monev
•		,

There is a data sheet for Saving money.

3 (a) Sunita has a bank account.

Next year, she expects to get £110 interest but pay fees of £60

This table shows the bills Sunita pays and the cashback rates the bank pays her.

	Phone	Water
Bill	£38 per month	£372 per year
Cashback rate	3%	2%

She says,

"Next year, the total interest and cashback will be at least £70 more than the fees."

Is she correct?

You <b>m</b>	ust s	how	your	working.
--------------	-------	-----	------	----------

[6 marks]





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	Ethan shop	os at Westco super	market and has a W	estco credit card.		
3 (b)	Ethan has	6000 points.				
	How much Circle your		e uses them to help	pay for a holiday?		[1 mark]
		£60	£180	£240	£1800	
3 (c)	£3 an £9	200 on groceries ad 000 on petrol.	se his Westco credit	t card at Westco to	spend	
			in other shops he w	vill earn 5000 point	s in total.	[5 marks]



Next week, Joe p	plans to spend	
£25 on g	groceries at Westco	
and		
£165 on	meals in restaurants.	
He is going to us	e 3200 points to pay for as much of this as possi	ble.
Work out the leas	st amount of money he would also need to pay.	
	, ,	[3 marks]

Turn over for the next question

Turn over ▶

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## 4 Fitness club

4 (a) The table shows the price of membership at a fitness club.

Type of membership	Price per year	
Adult	£240 + 20% VAT	
Senior (aged 60 or over)	£160 + 20% VAT	
Junior (aged 16 or under)	£110 + 20% VAT	
Family (2 adults and 2 juniors)	£719 including VAT	

Mr and Mrs Jones are both aged 42 They have two sons, aged 14 and 16

They all want to buy membership of the fitness club for a year.

Mrs Jones says,

"Family membership will save us more than £120"

Is she correct?

You must		

[6 marks]



Lee runs on a treadmill.	
He burns 688 calories per hour.	
How many calories does he burn in $7\frac{1}{2}$ minutes?	
2	[2 marks]
	-
Check your answer.	
Show how you have done your check.	
chew here you have done your officers.	[1 mark]
Question 4 continues on the next page	
Question + continues on the next page	

Turn over ▶



**4 (c)** Amy, Kim, Sal and Tom are the trainers at the fitness club.

Two trainers work each day from Monday to Thursday.

Three trainers work on Friday, Saturday and Sunday.

Complete a possible rota for next week so that

- Amy works on five days
- Kim, Sal and Tom each work on four days
- Amy does not work on Sunday
- nobody works for **more than** three days in a row.

[3 marks]

Practise on this rota.

	Trainer 1	Trainer 2	Trainer 3
Monday			
Tuesday			
Wednesday			
Thursday			
Friday			
Saturday			
Sunday			

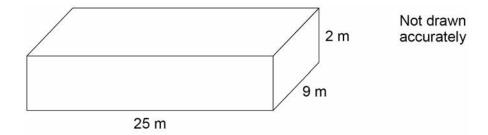
Put your answer on this rota.

	Trainer 1	Trainer 2	Trainer 3
Monday			
Tuesday			
Wednesday			
Thursday			
Friday			
Saturday			
Sunday			



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4	(d)	This cuboid re	presents the	water in t	he swimming	pool at the	fitness club.



 $1 \text{ m}^3 = 1000 \text{ litres}$ 

There should be 0.0004 fluid ounces of chlorine for each litre of water.

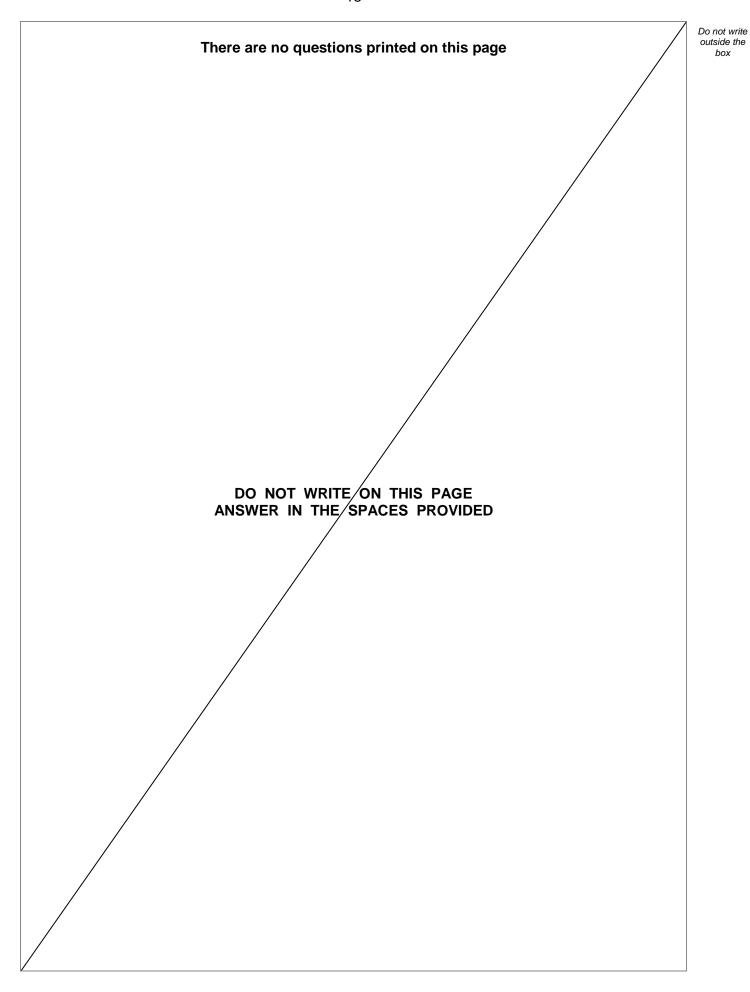
How many fluid ounces of chlorine should there be in the pool?

[3	marks]
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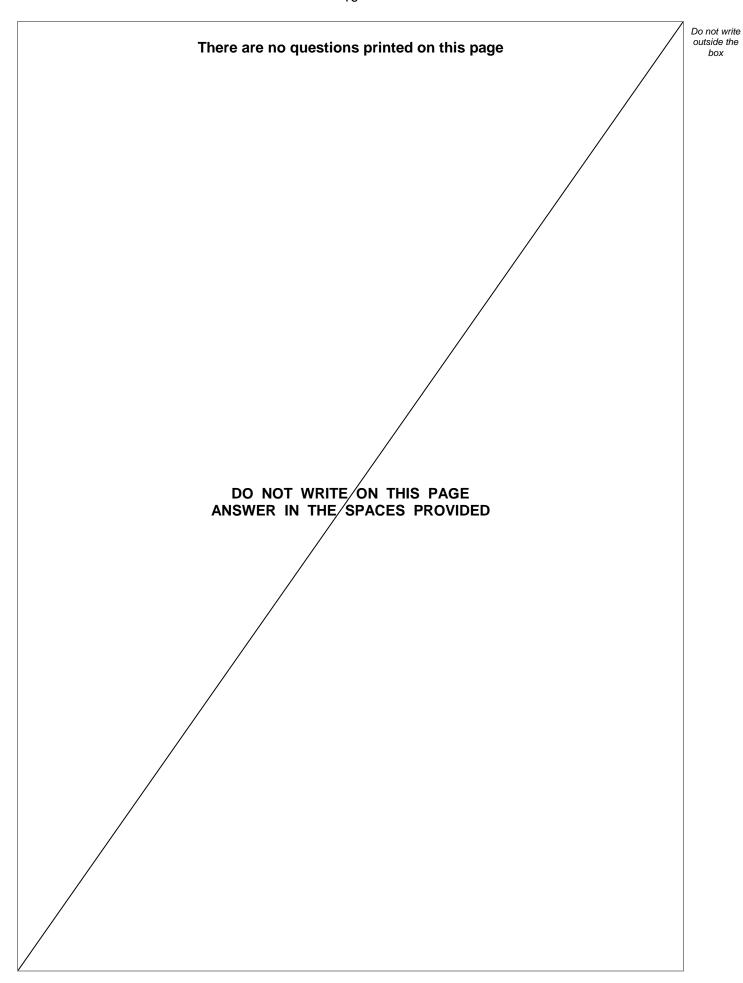
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## **END OF QUESTIONS**











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