

Please write clearly in block capitals.

Centre number

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Candidate number

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Surname

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Forename(s)

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Candidate signature

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# 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).



For Examiner's Use

Question	Mark
1	
2	
3	
4	
<b>TOTAL</b>	

### 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.



J U N 1 8 4 3 6 8 0 1

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

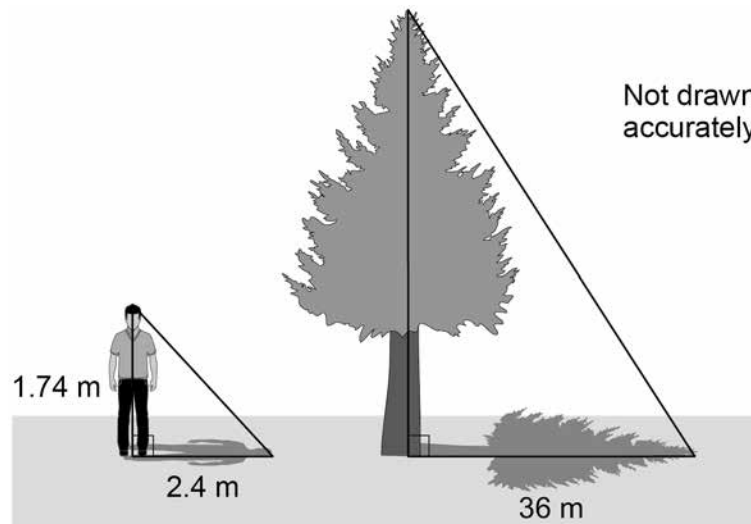
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**1 Winset Park**

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.



Use the formula on the data sheet to work out the height of the tree.

**[2 marks]**

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Check your answer.

Show how you have done your check.

**[1 mark]**

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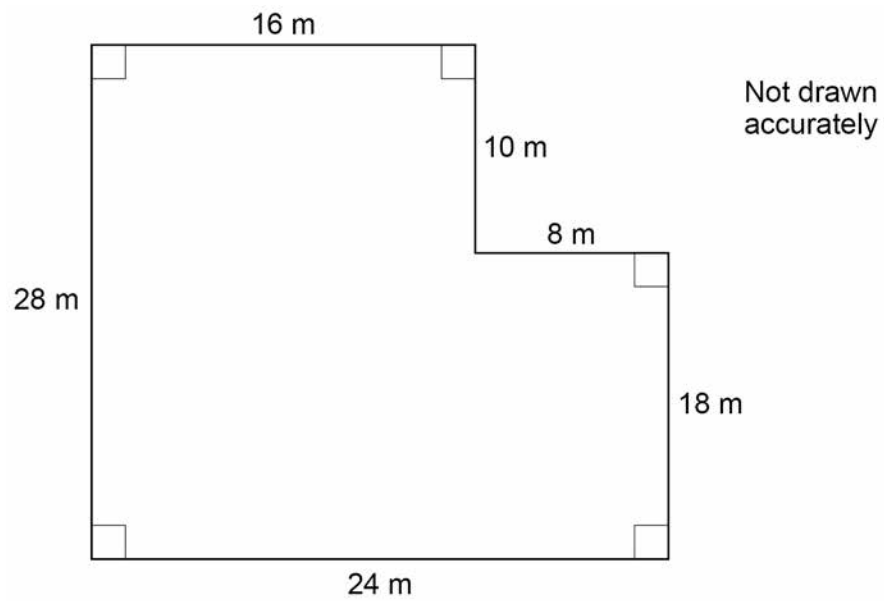
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Turn over ►



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  $592 \text{ m}^2$

[2 marks]

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

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

Show a possible design on the scale drawing opposite.

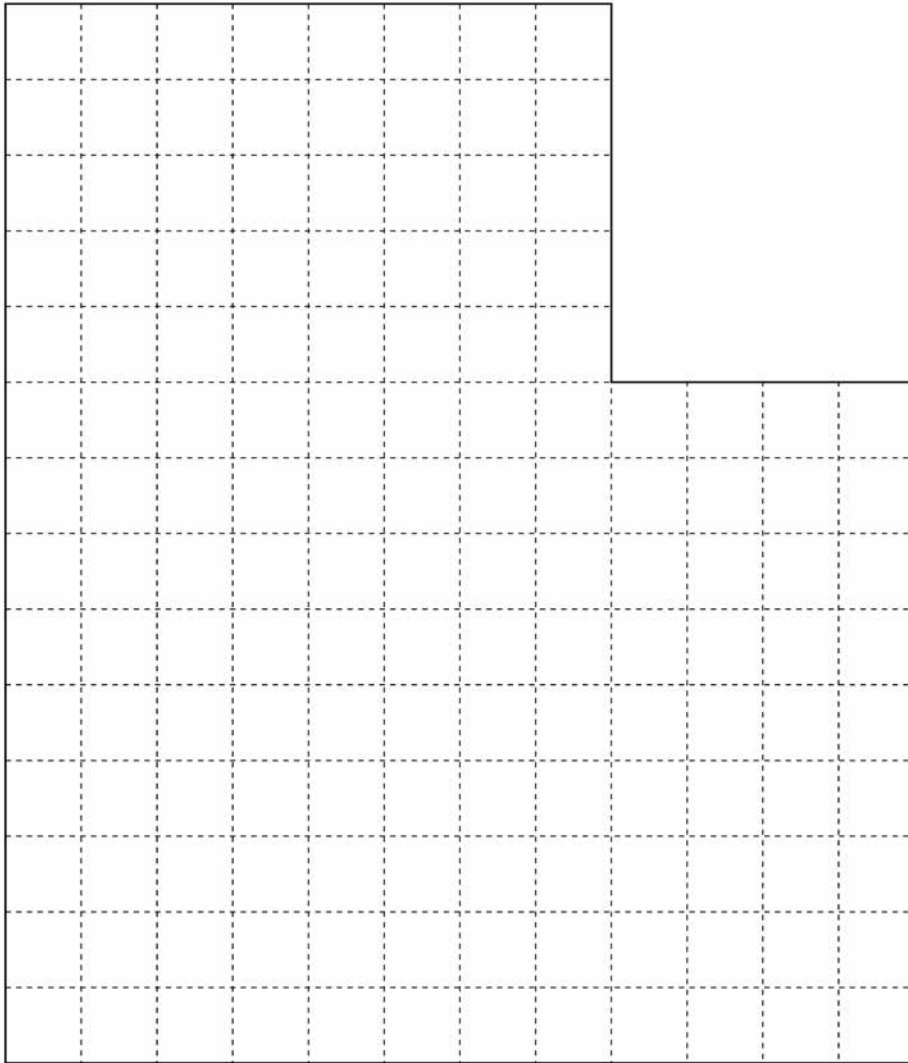
**[5 marks]**



Scale: 1 cm represents 2 m

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North



South

16

Turn over ►



**2 Garden birds**

Here are some birds eating a fat cake.



Jenny mixes bird feed and lard to make fat cakes.



**Bird feed**



**Lard**

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

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

Show that Jenny needs 80 grams of bird feed for each fat cake.

**[2 marks]**

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- 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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14



**3 Saving money**

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.

	<b>Phone</b>	<b>Water</b>
<b>Bill</b>	£38 per month	£372 per year
<b>Cashback rate</b>	3%	2%

She says,

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

Is she correct?

You **must** show your working.

**[6 marks]**

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**Turn over ►**









- †4 (b)** Lee runs on a treadmill.  
He burns 688 calories per hour.

How many calories does he burn in  $7\frac{1}{2}$  minutes?

**[2 marks]**

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Check your answer.  
Show how you have done your check.

**[1 mark]**

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**Question 4 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
<b>Monday</b>			
<b>Tuesday</b>			
<b>Wednesday</b>			
<b>Thursday</b>			
<b>Friday</b>			
<b>Saturday</b>			
<b>Sunday</b>			

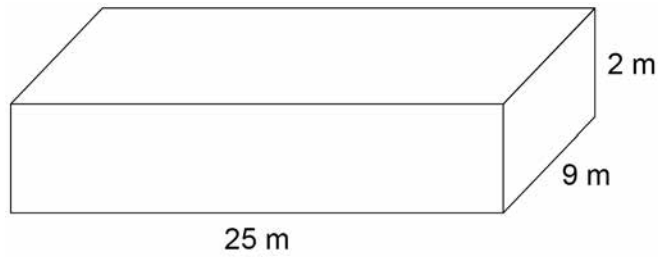
Put your answer on this rota.

	Trainer 1	Trainer 2	Trainer 3
<b>Monday</b>			
<b>Tuesday</b>			
<b>Wednesday</b>			
<b>Thursday</b>			
<b>Friday</b>			
<b>Saturday</b>			
<b>Sunday</b>			





- 4 (d)** This cuboid represents the water in the swimming pool at the fitness club.



Not drawn  
accurately

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

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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15

**END OF QUESTIONS**



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