

Please write clearly in block capitals.

Centre number

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Candidate number

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# Functional Skills Certificate

## FUNCTIONAL MATHEMATICS

Level 1

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Tuesday 1 March 2016

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.
- Fill in the boxes at the top of this page.
- 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 3(c) and 4(d). These questions are indicated with a †.

### Advice

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



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ANSWER IN THE SPACES PROVIDED**



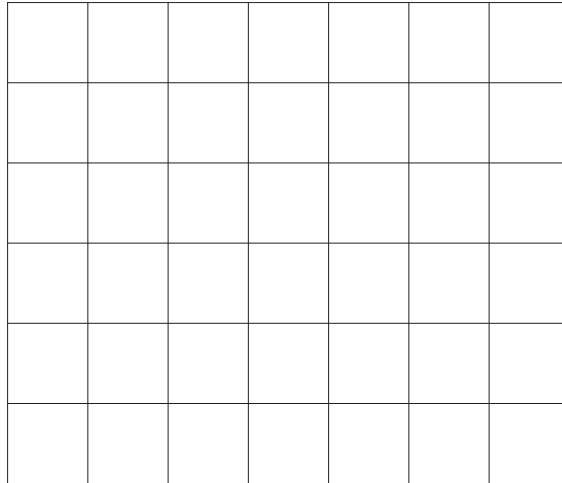
Answer **all** questions in the spaces provided.

**1 Dance studio**

There is a **data sheet** for Dance studio.

**1 (a)** Sue has a new room in her studio.

The grid shows the floor space available for the children in this room.



represents 1m<sup>2</sup>

Sue says,

“I can teach 14 juniors **or** 8 seniors in this room.”

Is she correct?

You **must** show your working.

**[5 marks]**

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**Turn over** ►

1 (b) Each junior pays £4 for a lesson.  
Each senior pays £6 for a lesson.

Each Saturday,  
48 juniors and 37 seniors pay for a lesson  
Sue's costs are £260

Sue says,  
"I make more than £150 profit each Saturday."

Is she correct?  
You **must** show your working.

**[5 marks]**

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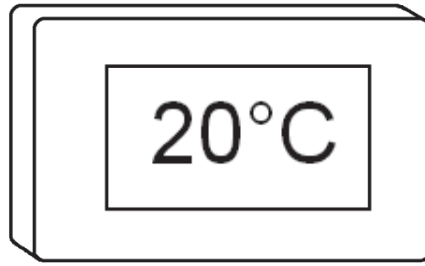
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- 1 (c) The temperature in a dance class should be at least 65°F  
Sue reads the temperature one morning.



Show that the temperature is above 65°F  
Use the steps given on the data sheet.

**[4 marks]**

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14



2

**Football**There is a **data sheet** for Football.

2 (a)

Kev, Liz and Mal are buying their season tickets.

This diagram shows the seats in the section where they want to sit.

Seat not available     
  Seat available

		<b>Front</b>											
		1	2	3	4	5	6	7	8	9	10	11	12
Row A													
Row B													
Row C													
Row D													
Row E													
Row F													
Row G													
		1	2	3	4	5	6	7	8	9	10	11	12
		<b>Back</b>											

They want 3 seats that are  
 next to each other  
 in the same row  
 as close to the front as possible.

List **one** set of seats they can choose.**[2 marks]**


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- 2 (b) The normal cost of a season ticket is £320  
Here are two ways you can buy the ticket.

**Option 1**

Pay £320 now

**Option 2**

Pay 25% of the normal cost now

**and**

Pay 10 monthly payments of £29.75

Kev says,

“Option 2 costs over £50 more than Option 1”

Is he correct?

You **must** show your working.

**[5 marks]**

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2 (c) Liz is meeting Kev at Kirkdale station at 1415

What is the **latest** train he can get from Central station?  
Circle your answer.

[1 mark]

1353

1355

1405

1410

2 (d) To get **to and from** Rover's football ground, Mal travels  
by train between South Parkway and Sandhills  
by Soccerbus between Sandhills and the ground.

Here are the ticket prices for the train.

**South Parkway to Sandhills**

Single £5.25

Return £5.70

Work out the lowest possible **total** for his travel costs.

[2 marks]

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- 2 (e) Liz has 18 Golden Goal tickets to sell.  
She expects to sell them all.

She wants to give

- a prize of £10 to the person with the winning ticket
- at least £20 to the junior team for a new football.

Work out the **minimum** amount she should charge for a ticket.  
Give your answer to the nearest 10p

[4 marks]

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- 2 (f) The time on each ticket is a different multiple of 5 minutes.  
Mal buys a ticket with the time 30 minutes.  
The time of the first goal is 33 minutes.

Does he have the winning ticket?  
Give a reason for your answer.

[1 mark]

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15

Turn over for the next question



**3 Day centre**

Day centres provide lunch and activities for retired people.



I run a day centre.

**David**

**3 (a)** On Wednesday, lunch starts with tomato soup.

**To make tomato soup for 4 people you need**

- 1 kg of tomatoes
- 1 onion
- 1 carrot
- 2 tablespoons of tomato purée
- 2 stock cubes
- 2 pints of water



David says,

“I have to make soup for 40 people.”

He already has 3 kg of tomatoes.

Tomatoes cost £2.85 per kg

He says,

“It will cost less than £20 to buy the tomatoes I need.”

Is he correct?

You **must** show your working.

**[5 marks]**

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**Turn over for the next question**



**Turn over ►**

**3 (b)** Each day, from Monday to Saturday, David needs

- 2 drivers
- 2 helpers.

These people can help next week.

The ticks show the days and jobs they can do.

Name	Mon	Tue	Wed	Thu	Fri	Sat	Driver	Helper
Andy	✓	✓	✓	✓	✓		✓	✓
Cathy	✓	✓	✓	✓	✓	✓	✓	✓
Don			✓	✓	✓	✓		✓
Ellie	✓	✓			✓	✓	✓	✓
Harry				✓	✓	✓	✓	
Lilin	✓	✓	✓	✓	✓			✓
Sidrah	✓	✓	✓	✓	✓			✓



Complete a rota for next week.  
Include each person at least once.

**[3 marks]**

Practise on this grid.

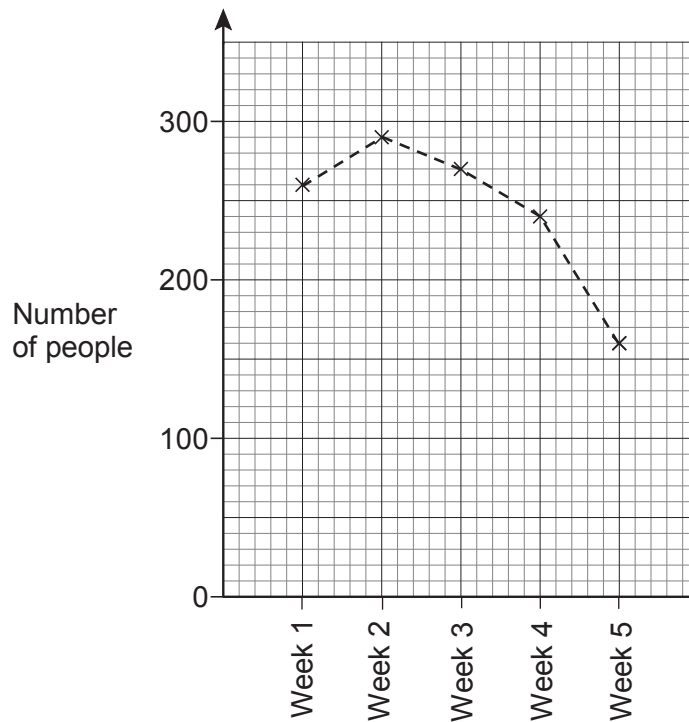
<b>Day</b>	<b>Drivers</b>		<b>Helpers</b>	
Monday				
Tuesday				
Wednesday				
Thursday				
Friday				
Saturday				

Put your answer on this grid.

<b>Day</b>	<b>Drivers</b>		<b>Helpers</b>	
Monday				
Tuesday				
Wednesday				
Thursday				
Friday				
Saturday				



†3 (c) The graph shows the number of people attending the day centre for five weeks.



Each person attending paid £3 for lunch.

How much money did the centre take for lunches in **Week 2**?

**[3 marks]**

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

**[1 mark]**

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- 3 (d)** Mary is doing a sponsored silence to raise money for the day centre.  
Sponsors give  
an amount of money for every 15 minutes Mary is silent  
**or**  
a single amount of money.

Here is Mary's sponsor form.

Total time silent = 2 hours		
Sponsor	Amount per 15 minutes	Total
<i>Dad</i>	£5	£40
<i>Emmie</i>	£3	
<i>Ravi</i>	X	£5
<i>Uncle Jim</i>	£2	
<i>Auntie Jo</i>	X	£10

Mary says,

"I raised **more than** £100"

Is she correct?

You **must** show your working.

**[5 marks]**

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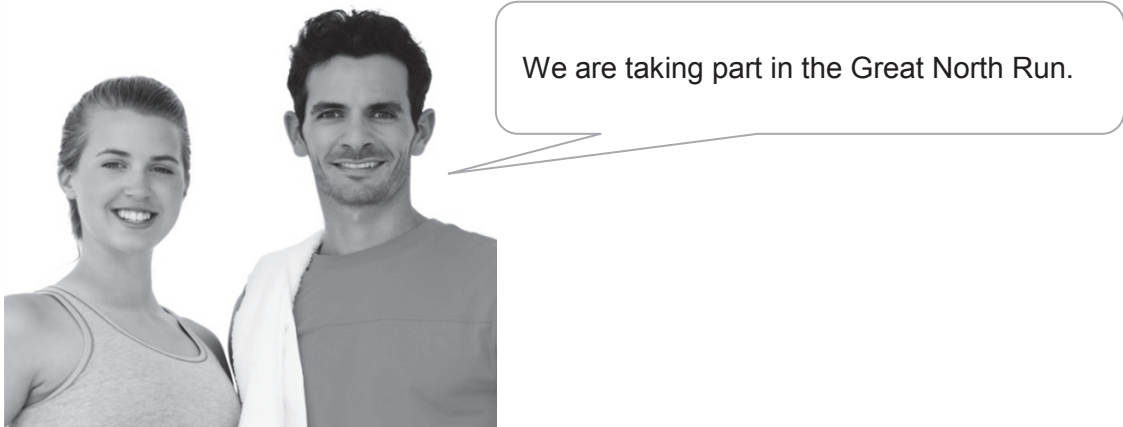


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**4 Great North Run****Vikki****Chris**

**4 (a)** Vikki and Chris are planning their journey to the run.

They must drive to South Shields then get a race bus to the start.

- The journey to South Shields takes 1 hour.
- It takes 45 minutes to get to the bus and travel to the start.
- They must be at the start half an hour before the run.

The run starts at 10.30 am

Vikki says,

“We will arrive in time if we leave at 8 am”

Is she correct?

You **must** show your working.

**[4 marks]**

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**4 (b)** During the race, Chris records the time he takes for each 5 kilometre section.

Here are his times.

23.0 minutes

23.4 minutes

24.5 minutes

26.1 minutes

Chris wanted to have a **mean** time of less than 25 minutes per section.

Did he do this?

You **must** show your working.

[4 marks]

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- 4 (c)** Vikki wants to know her average speed for the race.  
Use these steps to work out her average speed, in kilometres per hour.

**Step 1** Work out      number of kilometres run  $\times$  60

**Step 2** Work out      answer to **Step 1**  $\div$  time taken in minutes

Vikki ran 21 kilometres in 150 minutes.

Work out her average speed.

**[3 marks]**

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- †4 (d) Vikki paid a £49.50 entry fee for the run.  
She also paid  
    £12.30 in travel costs  
    £8.99 for lunch.

Work out the total amount she paid.

[2 marks]

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

[1 mark]

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**END OF QUESTIONS**



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