



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

Monday 14 January 2019

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.
- 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.
- Evidence of checking is specifically assessed in Questions 1(c) and 3(a). 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	
<b>TOTAL</b>	



J A N 1 9 4 3 6 8 0 1

IB/M/Jan19/E7

**4368**

**QAN 500/8702/2**

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

**1 On the farm**

There is a **data sheet** for On the farm.



I am a farmer.  
I keep cows and pigs.

**Ken**

- 1 (a)** One day, Ken records the milk yields, in litres, for 30 of his cows.

Number of litres	Frequency
21.6	5
21.7	15
21.8	5
21.9	3
22.0	2

Work out the mean milk yield for these 30 cows.

**[3 marks]**

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- †1 (c) Ken wants to build a rectangular sty for 1 sow and 7 piglets.  
Work out the minimum area of sty he needs to build.

[2 marks]

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

[1 mark]

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- 1 (d) Ken has  
12 sections of fencing, each of length 1 metre  
one gate, of width 2 metres.

He uses **all** the fencing and the gate to build the rectangular sty.  
He does not cut the sections of fencing.

Can he build a sty large enough for 1 sow and 7 piglets?  
You **must** show your working.

[4 marks]

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**2 Part-time work**

There is a **data sheet** for Part-time work.

Emmie lives near Queens Road.



**Emmie**

I work part-time in a shop in the Trafford Centre.

Here are the details of Emmie's journey to work.

<b>5-minute</b> walk from home to the Queens Road tram stop
Get the tram from Queens Road to Piccadilly Gardens
Get the bus from Piccadilly Gardens to the Trafford Centre
<b>10-minute</b> walk from the bus stop at the Trafford Centre to the shop

**2 (a)** Emmie starts work at 10.00 am

She says,

“If I leave home at 8.40 am I should get to work on time.”

Is she correct?

You **must** show your working.

**[5 marks]**

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**Turn over ►**



- 2 (b)** Emmie is 21 years old.  
She is paid the National Minimum Wage.  
She works for 2 days each week.  
On each of the 2 days, she  
    works for 4 hours  
    pays £4 in tram fares  
    pays £3.70 in bus fares.

Emmie pays the fares from her wages.

How much money does she have left from her wages each week?

**[4 marks]**

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- 2 (c)** Emmie changes jobs.  
In her new job, she is paid the Real Living Wage.  
She works for 3 days each week.  
On each of the 3 days she works 4 hours.  
She has no travel costs.

Emmie says,

“In my new job, I am better off by **more than** £60 per week.”

Is she correct?

You **must** show your working.

**[3 marks]**

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2 (d)

Jo works with Emmie.

She is paid a salary of £21 105

She uses these steps to work out the Income Tax she should pay.

**Step 1** Subtract £11 850 from her salary

**Step 2** Work out 20% of the answer to **Step 1**

The answer to **Step 2** is the Income Tax Jo should pay.

How much should she pay?

[3 marks]

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15

Turn over for the next question

Turn over ►



**3 Log burner**

Rohan wants to put a log burner in his living room.



Here is some information about four log burners.

The log burners are called the Aston, the Brunel, the Chester and the Dover.

	Heat output (kW)	Dimensions of log burner (mm)		
		Height	Width	Depth
Aston	3.75	510	389	291
Brunel	4	524	385	290
Chester	6	592	553	397
Dover	11	678	759	403

**†3 (a)** How many **centimetres** wider is the Dover than the Aston?

**[3 marks]**

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Check your answer.

Show how you have done your check.

**[1 mark]**

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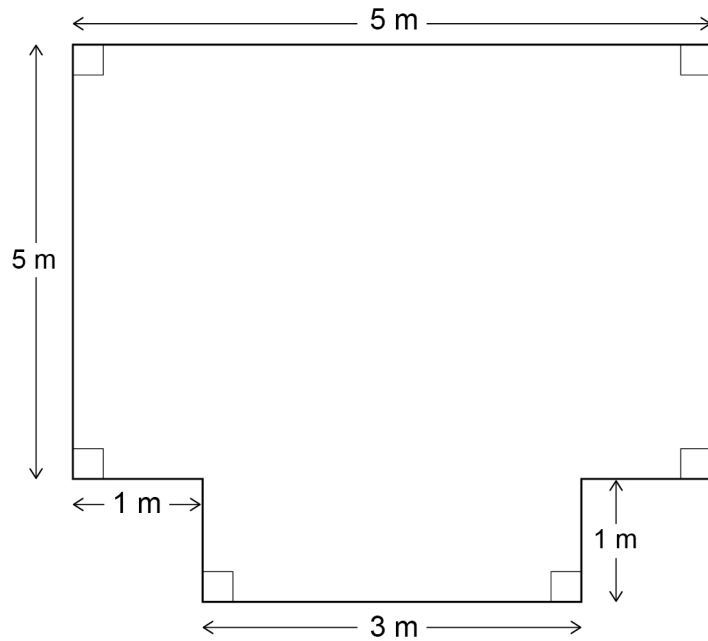


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- 3 (b)** The height of Rohan's living room is 3 metres.  
Here is a floor plan of the room.



Not drawn  
accurately

Rohan uses this formula to work out the heat output needed for the room.

$$K = \frac{A \times h}{14}$$

$K$  is the heat output in kilowatts (kW)

$A$  is the area of the floor in square metres (m<sup>2</sup>)

$h$  is the height of the room in metres (m)

What is the smallest log burner with enough heat output for this room?  
You **must** show your working.

[5 marks]

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Turn over ►





**4 Apricot jam**

Here is a recipe for apricot jam.

**Ingredients for one batch of jam**

Apricots 1.8 kg

Sugar 700 g

Water 125 ml

**Method**

Put the ingredients into a pan

Heat the mixture to 105 °C

Cook for 40 minutes

**4 (a)** How many batches of jam can be made using 2 litres of water?

Circle your answer.

**[1 mark]**

0.8

1.6

8

16

**4 (b)** Peter is going to use this recipe to make apricot jam.

He has

7.2 kg of apricots

2.5 kg of sugar.

He says,

“I have enough sugar to make the jam using **all** 7.2 kg of apricots.”

Is he correct?

You **must** show your working.

**[5 marks]**

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