

Please write clearly in block capitals.

Centre number

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Candidate number

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Surname

Forename(s)

Candidate signature

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.

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

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.



J A N 1 9 4 3 6 8 0 1

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]



Ken wants to build a rectangular sty for 1 sow and 7 piglets.

†1 (c) Work out the minimum area of sty he needs to build.

[2 marks]

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

[1 mark]

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]



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.

5-minute 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
10-minute 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]

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]

- 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]



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]

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]

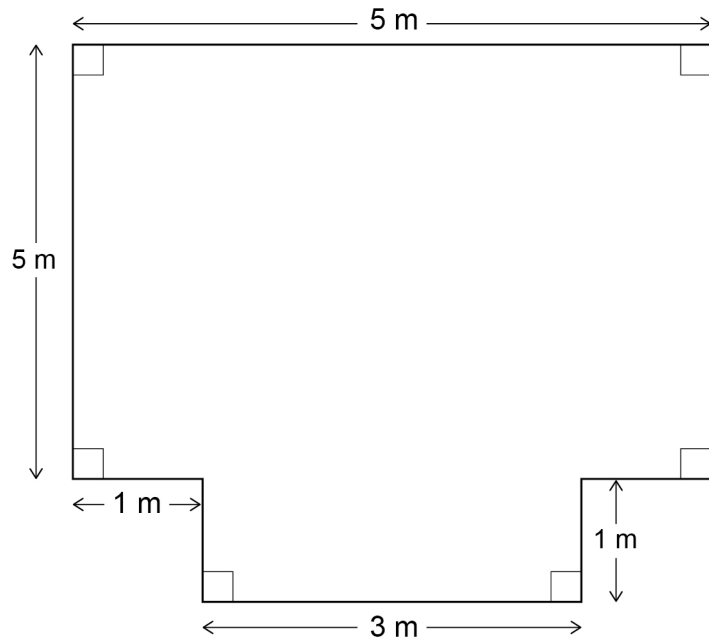
Check your answer.

Show how you have done your check.

[1 mark]



- 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^2)

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]

Turn over ►



3 (c)

Dania has a log burner.

The log burner can burn smokeless fuel or wood.

The table shows information about the amount used per hour and the cost.

	Smokeless Fuel	Wood
Amount used	0.8 kg per hour	1.5 kg per hour
Cost	£4.40 for an 8 kg bag	£5.40 for a 10 kg bag

Dania uses her log burner for

4 hours per day

5 days per week.

She says,

“Using smokeless fuel is cheaper than using wood by **more than** £7 per week.”

Is she correct?

You **must** show your working.

[7 marks]

16



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]

Turn over ►



4 (c) Peter buys more apricots and sugar.

Altogether, he makes $17\frac{3}{4}$ pounds of jam.

1 pound = 16 ounces

He puts the jam into jars.

Each jar holds 11 ounces of jam.

How many jars can Peter fill with jam?

[3 marks]



4 (d) Peter’s costs for each jar of jam are

Apricots	£2.20
Sugar	11p
Jar	70p
Other costs	3p

Peter says,
 “**More than** 70% of the cost is for apricots.”

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

[4 marks]

END OF QUESTIONS



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