



Surname _____

Other Names _____

Centre Number _____

Candidate Number _____

Candidate Signature _____

Functional Skills Certificate

FUNCTIONAL MATHEMATICS

Level 2

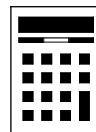
4368

Monday 14 January 2019 Morning

Time allowed: 1 hour 30 minutes

For this paper you must have:

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



At the top of the page, write your surname and other names, your centre number, your candidate number and add your signature.

[Turn over]



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 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.

DO NOT TURN OVER UNTIL TOLD TO DO SO



Answer ALL questions in the spaces provided.

1 ON THE FARM

There is a DATA SHEET for On the farm.

Ken says, "I am a farmer. I keep cows and pigs."

- 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



5

**Work out the mean milk yield for these 30 cows.
[3 marks]**

[Turn over]



1 (b) In total, Ken has 150 cows.

- The mean milk yield per cow is 7944 litres per year.
- Ken sells all the milk for 33p per litre.

The table shows the cost of looking after his cows this year.

Milking	£385 per COW
Food	£48 per TONNE
Other costs	£189 550

Ken buys 1800 tonnes of food per year.

He says, “This year, my profit on the milk from these cows is MORE THAN £60 000”

Is he correct?

You MUST show your working. [6 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]



BLANK PAGE

[Turn over]



16

[Turn over]



2 PART-TIME WORK

There is a **DATA SHEET** for Part-time work.

Emmie lives near Queens Road.

Emmie says, “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 (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]

[Turn over]



BLANK PAGE

[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.

		Dimensions of log burner (mm)		
	Heat output (kW)	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]

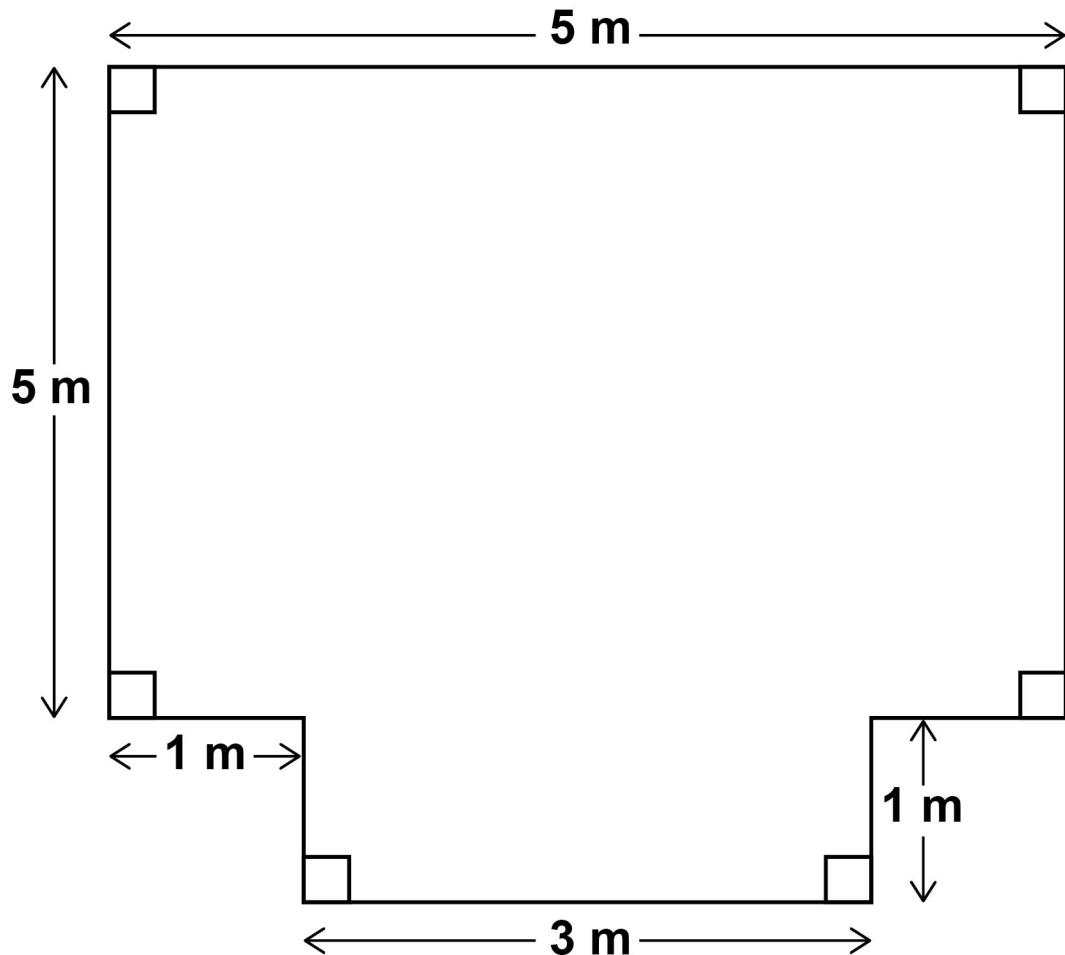
[Turn over]



3 (b) The height of Rohan's living room is 3 metres.

Here is a floor plan of the room.

It is 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)



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]



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]



There are no questions printed on this page

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

Copyright information

For confidentiality purposes, from the November 2015 examination series, acknowledgements of third party copyright material will be published in a separate booklet rather than including them on the examination paper or support materials. This booklet is published after each examination series and is available for free download from www.aqa.org.uk after the live examination series.

Permission to reproduce all copyright material has been applied for. In some cases, efforts to contact copyright-holders may have been unsuccessful and AQA will be happy to rectify any omissions of acknowledgements. If you have any queries please contact the Copyright Team, AQA, Stag Hill House, Guildford, GU2 7XJ.

Copyright © 2019 AQA and its licensors. All rights reserved.

IB/M/Jan19/CH/4368/E2

