



Surname _____

Other Names _____

Centre Number _____

Candidate Number _____

Candidate Signature _____

Functional Skills Certificate

FUNCTIONAL MATHEMATICS

Level 1

4367

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(d) and 2(c). 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 PART-TIME WORK

There is a DATA SHEET for Part-time work.

Emmie is a student.

She lives near Queens Road.

Emmie says, "I work one day each week 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



Emmie starts work at 10.00 am

- **She leaves home at 8.30 am to catch the tram at Queens Road.**
- **The tram is on time.**

**1 (a) What time does she get to Piccadilly Gardens?
[2 marks]**

[Turn over]



[Turn over]



1 (c) One day, Emmie is paid £41.30

She pays these fares.

- Queens Road to Piccadilly Gardens
£4.00 return
- Piccadilly Gardens to the Trafford Centre
£3.70 return

Emmie says, “After paying for fares I have MORE THAN £35 of my pay left over.”

Is she correct?

You MUST show your working. [4 marks]



†1 (d) Gail works with Emmie.

She is 21 years old.

She is paid the National Minimum Wage.

She works for 8 hours.

How much is she paid? [2 marks]

Check your answer.

Show how you have done your check. [1 mark]

[Turn over]

14



2 ON THE FARM

There is a **DATA SHEET** for On the farm.

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

- 2 (a)** One day, Ken records the milk yields, in litres, for 10 of his cows.

20.82 22.03 22.24 21.42 21.36

21.91 22.14 23.12 21.81 21.55

The UK mean milk yield per cow is **21.76 litres** per day.

Ken says, "The mean milk yield for these 10 cows today is **MORE THAN 21.76 litres.**"

Is he correct?

You **MUST** show your working. [4 marks]



[Turn over]



2 (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.

This year, his total costs for feeding and looking after the cows are £333 600

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. [5 marks]



[Turn over]



BLANK PAGE



†2 (c) Ken wants to build a sty for one sow and one piglet.

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]

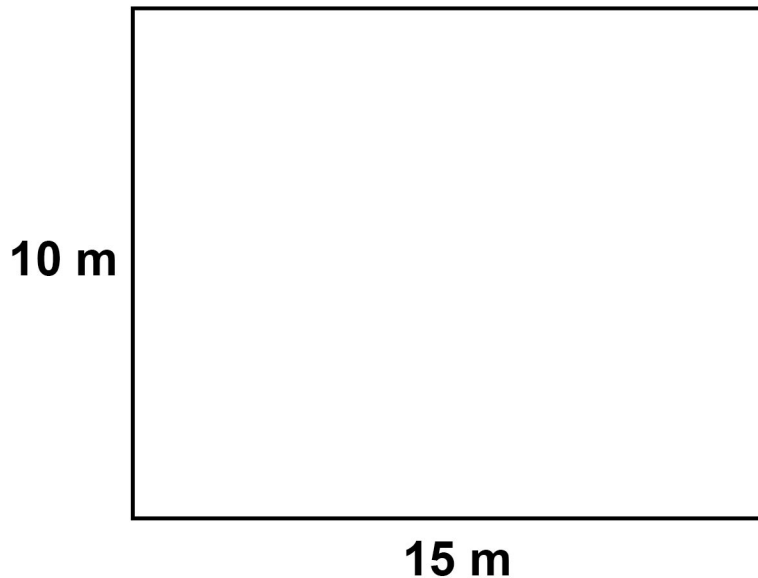
[Turn over]



16

2 (d) Here is a sketch of the fence around some land that Ken will use for new sties.

It is not drawn accurately.



Ken wants five square sties around the edges of the land, each 4 m by 4 m

The rest of the land will be open space.

Each sty must have at least one side facing the open space.

In the open space he wants

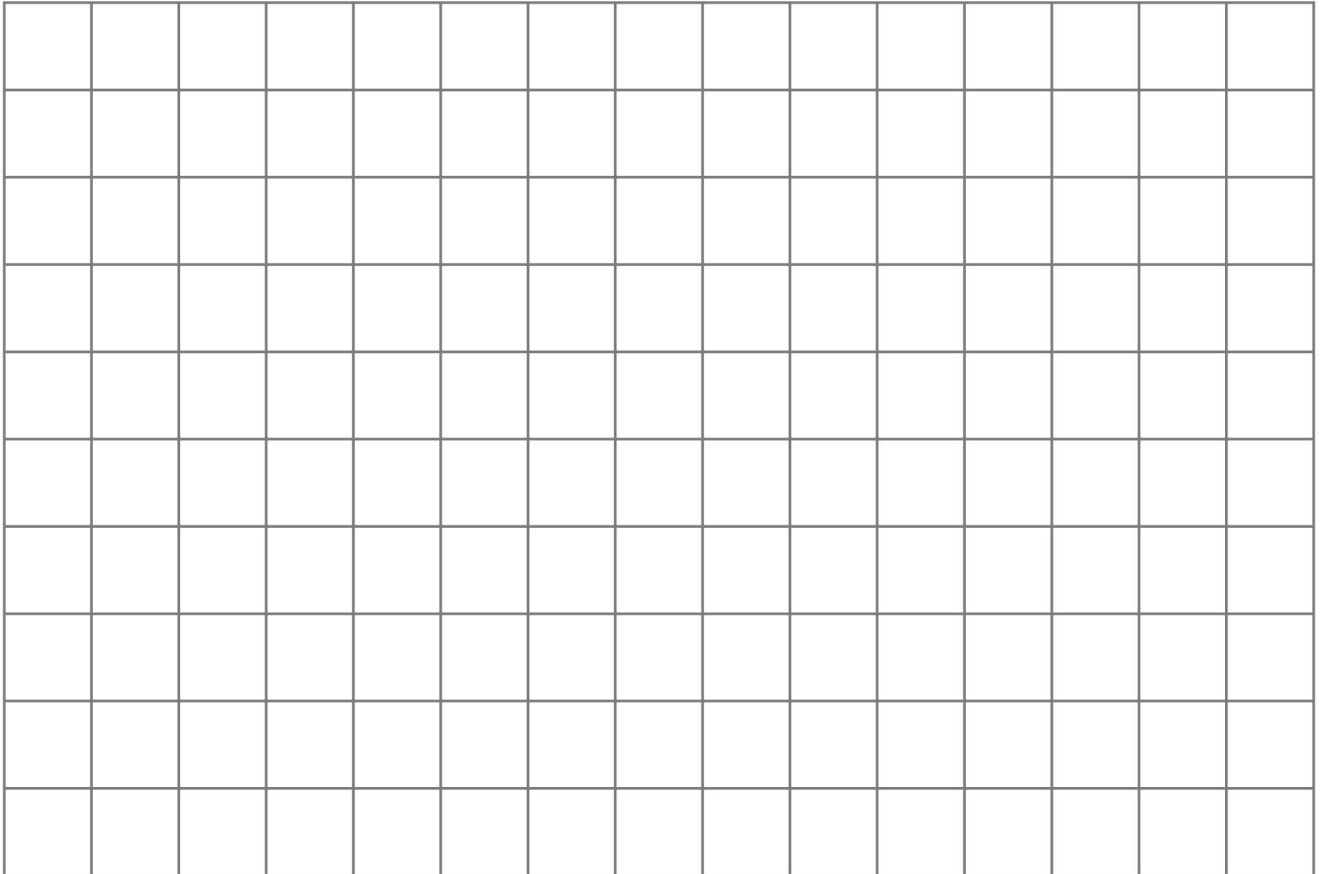
- a rectangular digging area of at least 30 m^2
- a rectangular feeding trough, 2 m by 3 m

Show a possible design for the land. [3 marks]



Practise on this grid.

SCALE 1 square represents 1 m²



[Turn over]

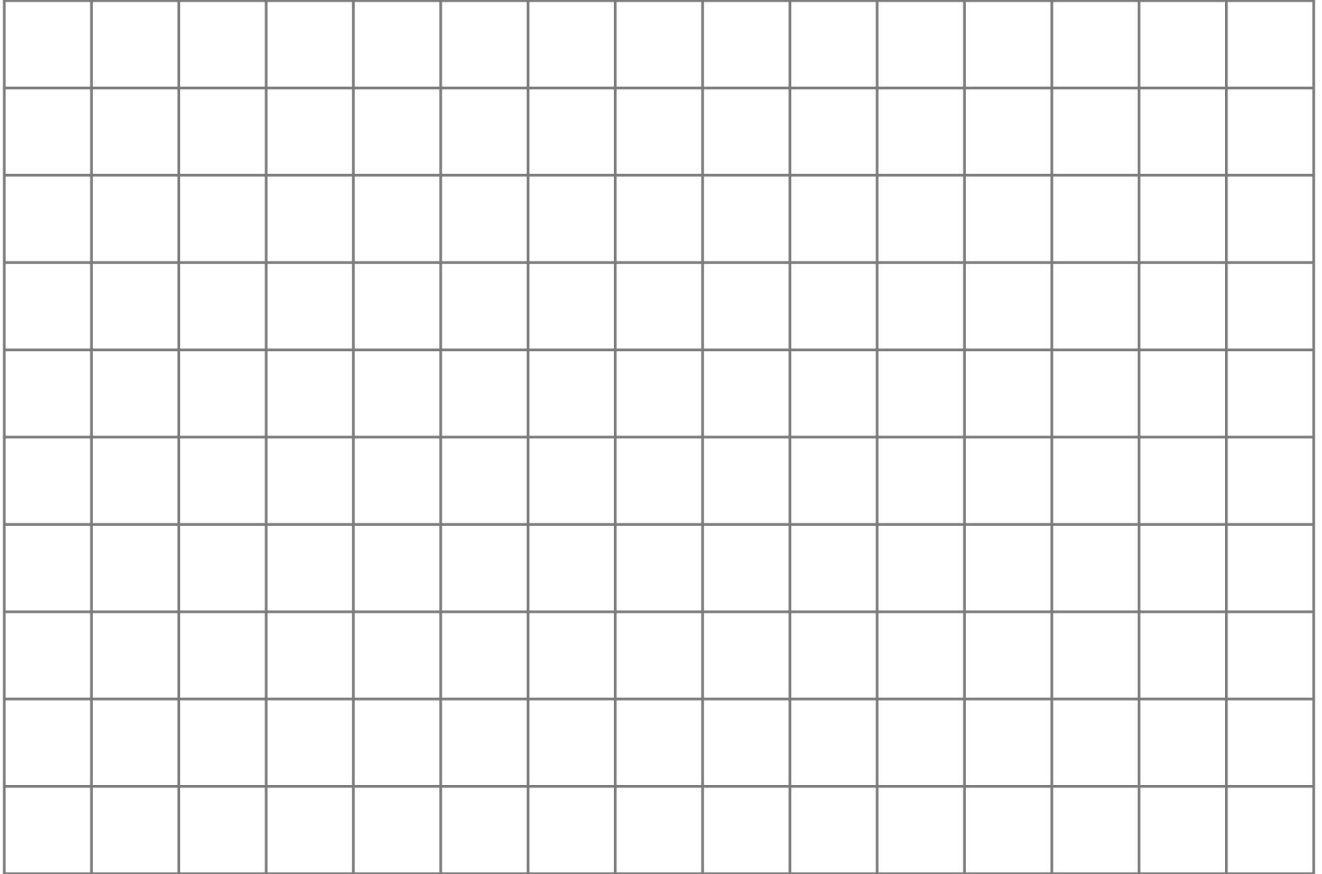


BLANK PAGE



Put your answer on this grid.

SCALE 1 square represents 1 m²



[Turn over]

15



3 LOG BURNER

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

Here is some information about three log burners.

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

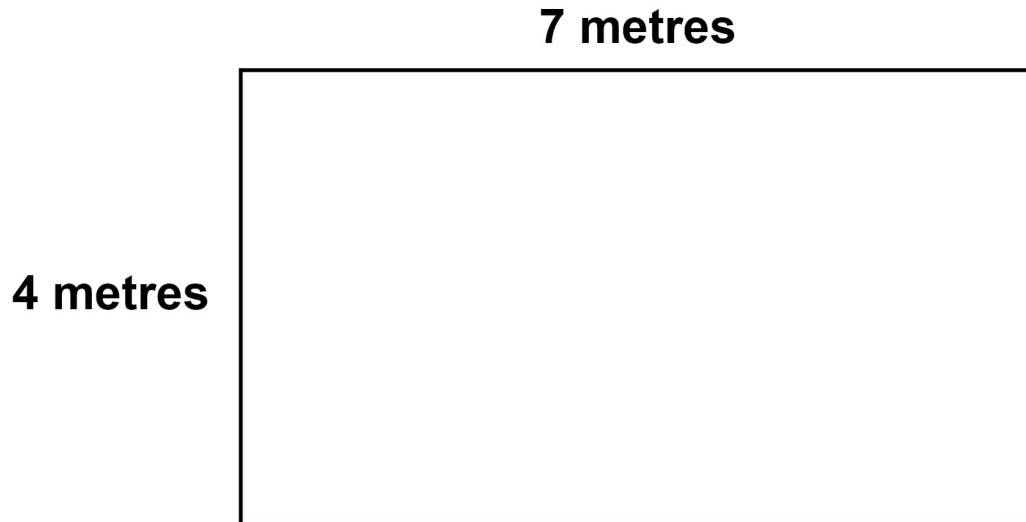
		Dimensions of log burner (mm)		
	Heat output (kW)	Height	Width	Depth
Brunel	4	524	385	290
Chester	6	592	553	397
Dover	11	678	759	403



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 these steps to work out the heat output needed for the room.

STEP 1 Work out length of room \times width of room

STEP 2 Work out answer to STEP 1 \times height of room

STEP 3 Work out answer to STEP 2 \div 14

What is the smallest log burner with enough heat output for this room?

You **MUST** show your working. [5 marks]



3 (c) Dania has a log burner.

The log burner can burn smokeless fuel or wood.

She finds these costs.

- 16 kg bag of smokeless fuel costs £7.50
- 12 kg bag of wood costs £6.90

Dania’s log burner uses 2 kg of smokeless fuel or wood per hour.

She uses the log burner for 24 hours per WEEK.

Dania says, “Using smokeless fuel is cheaper than using wood by MORE THAN £5 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 2 kg

Sugar 600 g

Water 250 ml

METHOD

Put the ingredients into a pan

Heat the mixture to 105 °C

Cook for 40 minutes

4 (a) Convert 250 ml to litres.

Circle your answer. [1 mark]

0.025 litres

0.25 litres

2.5 litres

25 litres



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

He has

- 8 kg of apricots
- 2500 g of sugar.

He says, “I have enough sugar to make the jam using ALL 8 kg of apricots.”

Is he correct?

You MUST show your working. [4 marks]

[Turn over]



30

Peter starts to heat the mixture.

- 4 (c) This thermometer shows the temperature of the mixture after a few minutes.



The thermometer has a reading of 98.4 °C.

How many degrees hotter does the mixture need to be to reach 105 °C? [2 marks]



4 (d) The temperature reaches 105 °C at 3.35 pm

At what time should Peter finish cooking the jam? [2 marks]

[Turn over]



4 (e) Peter makes 20 pounds of jam.

1 pound = 16 ounces

He puts the jam into jars.

Each jar holds 10 ounces of jam.

How many jars can Peter fill with jam? [3 marks]

4 (f) Sandra also makes apricot jam.

She makes 25 jars of jam.

- Each jar of jam costs £3.04 to make.**
- She sells each jar of jam for £3.99**



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/4367/E3



3 8



J A N 1 9 4 3 6 7