



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 1

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(d) and 2(c). 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 | |
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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

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



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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]

1 (b) Emmie says,
“I should arrive at the shop before 10.00 am”

Is she correct?

You **must** show your working.

[5 marks]



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]

14



2 On the farm

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



I am a farmer.
I keep cows and pigs.

Ken

- 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]

Question 2 continues on the next page



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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]



- †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.

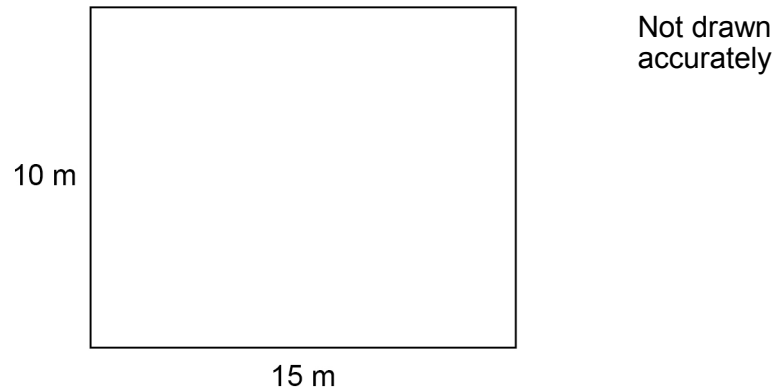
[1 mark]

Question 2 continues on the next page



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

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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 cm represents 1 m



Put your answer on this grid.

Scale 1 cm represents 1 m

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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 three log burners.

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

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

- 3 (a)** Rohan says,
“The width of the Dover is **more than** double the width of the Brunel.”

Is he correct?

You **must** show your working.

[3 marks]



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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]



Peter starts to heat the mixture.

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



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]

- 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]



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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

She says,
"I have made a profit of **more than** £24"

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

[4 marks]

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END OF QUESTIONS



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ANSWER IN THE SPACES PROVIDED**



| Question number | <p style="text-align: center;">Additional page, if required. Write the question numbers in the left-hand margin.</p> |
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