AQA

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).

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

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.

FUNCTIONAL SKILLS ONLINE COURSES

Recommendations

Based on your results from this initial assessment, we estimate you are currently at **Level 1.5.**
From this diagnostic, we think one of the following courses would be suitable:

Functional Skills Maths Level 2

≡ 35 Topic Count   ⏱ 105 Tests

📄 43 Mock Exams

Enrol Now

Pick my own

Functional Skills English Initial Assessment
English

☑ 13 Questions   ☑ No Time Limit

Start Initial Assessment

Functional Skills Maths Initial Assessment
Maths

☑ 25 Questions   ☑ No Time Limit
☑ Mixed Calculator

Start Initial Assessment

✅ Your answers are analysed to determine your Current Level

✅ Suggested courses for you to enrol on based on your calculated level

✅ Always know the level you are currently working at

✅ Determine when you are ready to sit your exam

✅ Explainer videos on every topic

✅ Quick-fire style mutiple choice questions

✅ Test your knowledge with exam-style questions

✅ Written solutions for all questions

Course Completion %
View the completion percentage for the course.

6.44%

Previous Results for Addition and Subtraction (including)

ATTEMPT DATE	DIFFICULTY	RESULT
25/04/2022 15:39	Easy	80%
18/01/2022 14:01	Medium	20%

Using Numbers
16 TOPICS

27.08% Complete

Start Learning

✅ See your progress through as you progress through each topic area

✅ Get your average scores for practice questions, topic tests and mock exams

✅ View all practice question, topic test and mock exam attempts over time

✅ View historical attempts to analyse your progress over time

Or visit
passfunctionalskills.co.uk

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.

> I work one day each week in a shop in the Trafford Centre.

Emmie

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]

8:30 + 5 min = 8:35 arrive at tram stop.

Get on tram at 8:37

⇒ Arrive at PG at 8:48 am.

1 (b)   Emmie says,

"I should arrive at the shop before 10.00 am"

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

[5 marks]

~~xxx~~ Next bus from PG to TC is at

9:12 am.

Arrives at TC at 9:45 am.

9:45 am + 10 min = 9:55 am.

Yes, she is correct.

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]

£4 + £3.70 = £7.70

£41.30 − £7.70 = £33.60

No, she is incorrect.

†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]

£7.38 × 8 = £59.04

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

[1 mark]

£59.04
───── = 8 hours worked.
£7.38

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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]

$20.82 + 22.03 + \ldots + 21.81 + 21.55 = 218.4 \text{ L}$ total.

$$\frac{218.4}{10} = 21.84 \text{ L}$$

Yes, he is correct.

Question 2 continues on the next page

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]

7944 × 150 × £0.33 = £393228.

£393228 − £333600 = £59628

No, he is incorrect.

†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]

2.48 + 1.8 = 4.28 m²
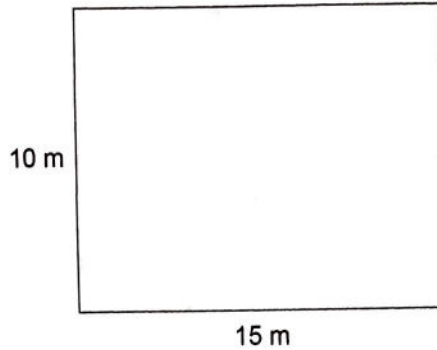
Check your answer.

Show how you have done your check.

[1 mark]

4.28 - 1.8 = 2.48 m².

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.

Not drawn
accurately

10 m

15 m

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.

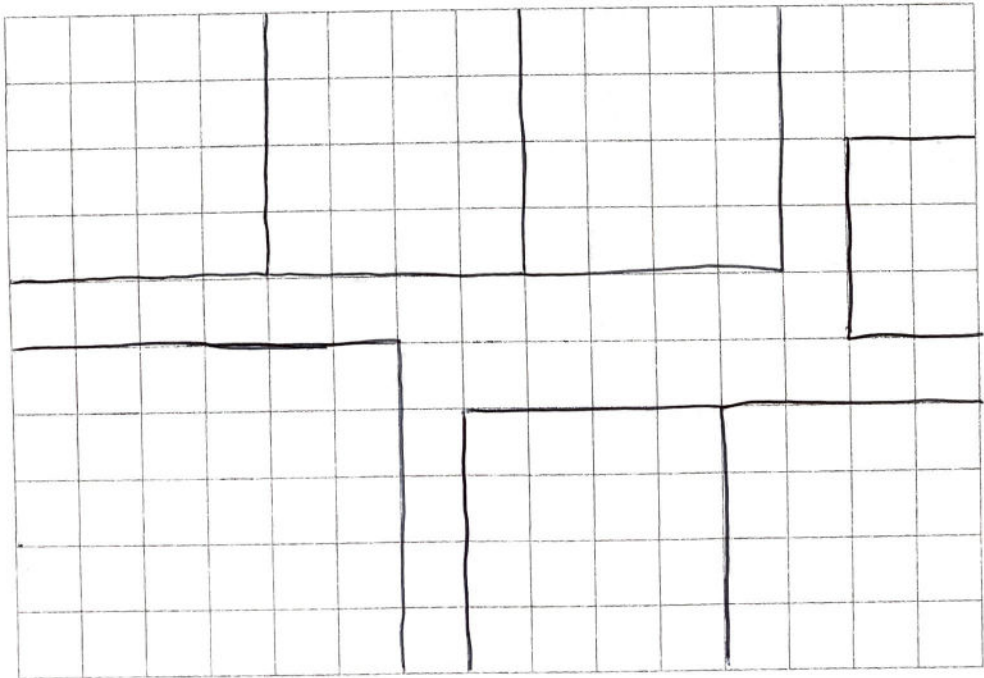Each sty must have at least one side facing the open space.

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
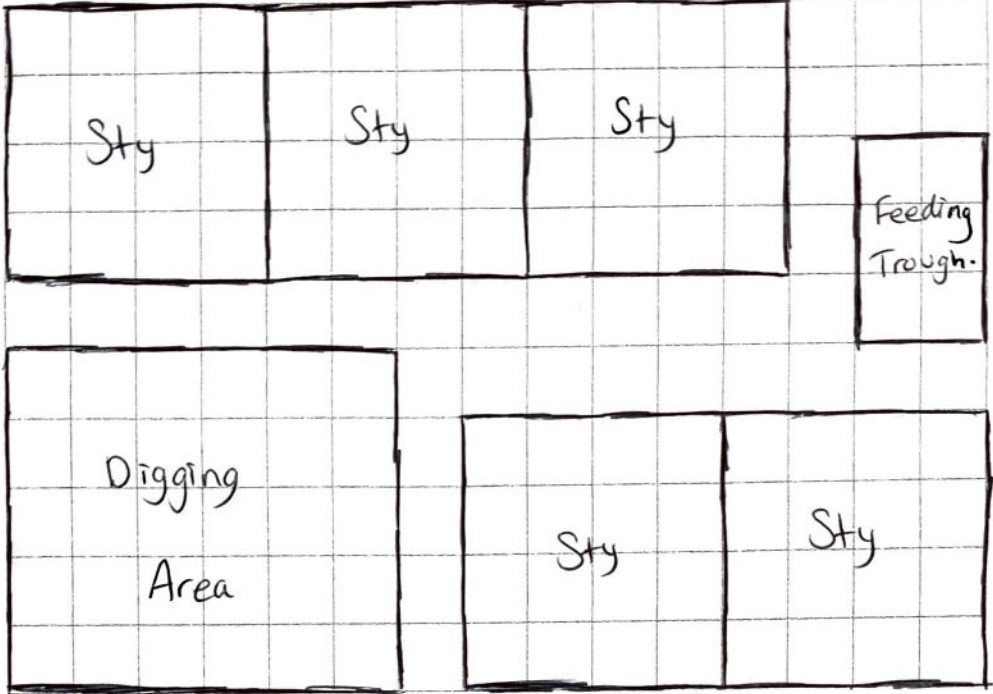
Show a possible design for the land.

[3 marks]

Practise on this grid.

Scale 1 cm represents 1 m

Put your answer on this grid.

Scale 1 cm represents 1 m

Sty

Sty

Sty

Feeding
Trough.

Digging

Area

Sty

Sty

15

Turn over for the next question

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."
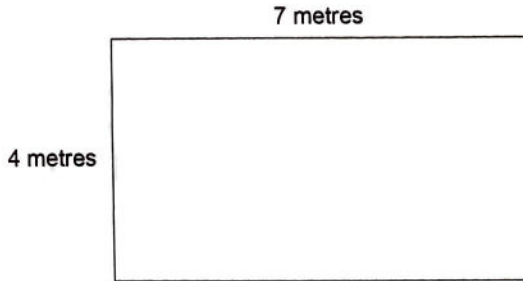
Is he correct?

You **must** show your working.

[3 marks]

$$\frac{759}{385} = 1.971$$

No, he is not correct.

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

Here is a floor plan of the room.

7 metres

Not drawn
accurately

4 metres

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

Step 1   Work out   length of room × width of room

Step 2   Work out   answer to **Step 1** × height of room

Step 3   Work out   answer to **Step 2** ÷ 14

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

[5 marks]

$7 \times 4 = 28 m^2$.

$28 \times 3m = 84 m^3$

$\dfrac{84}{14} = 6 kW$ required.

$\Rightarrow$ Chester.

Question 3 continues on the next page

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]

$24 \times 2kg = 48 \, kg / week.$

$SF: \quad \frac{48}{16} = 3 \, bags$

$3 \times £7.50 = £22.50$

$Wood: \quad \frac{48}{12} = 4 \, bags$

$4 \times £6.90 = £27.60.$

$£27.60 - £22.50 = £5.10$

Yes, she is correct.

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15

Turn over for the next question

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]

$\frac{8}{2} = 4$ batches.

4 × 600g = 2400g (sugar) needed.

Yes, he is correct.

Peter starts to heat the mixture.

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

98.4 °C

How many degrees hotter does the mixture need to be to reach 105 °C?

[2 marks]

$105 - 98.4 = 6.6°C.$

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

At what time should Peter finish cooking the jam?

[2 marks]

$3:35 + 40 mins = 4:15pm.$

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]

$20 lbs \times 16 oz/lb = 320 oz.$

$\dfrac{320}{10} = 32 \text{ jars}.$

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]

£3.99 − £3.04 = £0.95 profit per jar.

£0.95 × 25 = £23.75

No, She is incorrect.

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END OF QUESTIONS

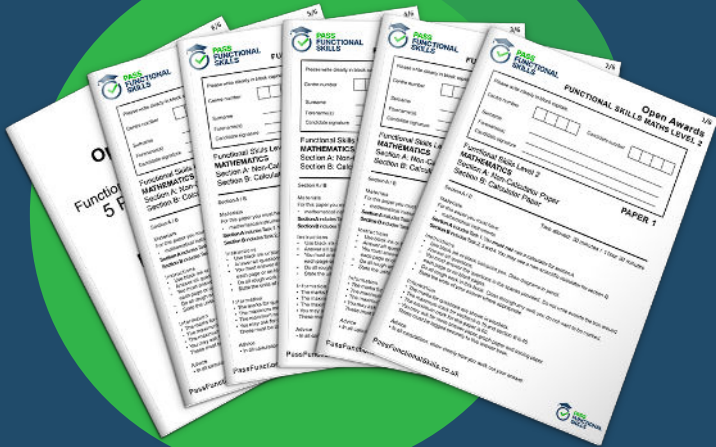**There are no questions printed on this page**

DO NOT WRITE ON THIS PAGE
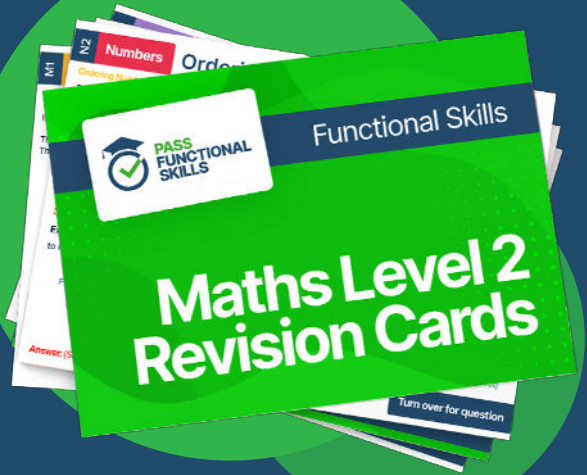ANSWER IN THE SPACES PROVIDED

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