AQA

Functional Skills Certificate
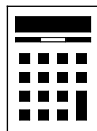# FUNCTIONAL MATHEMATICS

Level 1

Monday 6 November 2017   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.
* 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(a) and 3(b). These questions are indicated with a **†**.

Advice
* In all calculations, show clearly how you work out your answer.

*Do not write
outside the
box*

Answer **all** questions in the spaces provided.

1 **Water**

There is a **data sheet** for Water.

Liam wants to save water.

†1 (a) He puts a brick in the toilet cistern.

This saves 1.5 litres of water each flush.

One week he flushes the toilet 30 times.

Work out the number of litres of water he saves this week.

[2 marks]

Check your answer.

Show how you have done your check.

[1 mark]

1 (b) Liam has 3 baths each week.

He decides to have 3 showers instead.

He says,

   ''This will save **more than** 120 litres of water each week.''

Is he correct?

You **must** show your working.

[5 marks]

I share a house with friends.

We use a total of 600 litres of water per **day**.

Ella

1 (c) Show that they use 219 cubic metres of water per **year**.

1 year = 365 days

[2 marks]

1 (d) Ella and her friends find this information about water charges per **year**.

With a water meter

£125
plus
£3 per cubic metre of water used

Without a water meter
£720

They want to pay for the water they use in the way that is cheaper.

Should they have a water meter fitted?
You **must** show your working.

[4 marks]

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2   **Swimming**

One event in a swimming competition is the men's 100 metres freestyle.
Here are the results from the two semi-finals.

The fastest eight swimmers qualify for the final.
The letter Q shows that the swimmer qualified.

Semi-final 1	
Name	**Time (seconds)**
Jack	52.83 Q
Ahmed	52.92 Q
Cheng	52.97 Q
Ian	53.26
Mike	53.28
Ralf	53.37
Simon	53.49
Harry	53.70

Semi-final 2	
Name	**Time (seconds)**
Kev	52.88 Q
Paul	52.93 Q
Zain	53.14 Q
Dai	53.20 Q
Tom	53.23 Q
Yan	53.28
Louis	53.57
Greg	53.66

2 (a)   What was the time, in seconds, of the slowest swimmer who qualified?
Circle your answer.

[1 mark]

53.70   53.23   52.97   52.83

2 (b) In the final, each of the eight swimmers who qualified is given a lane number.
The table shows how the lane numbers are decided.

Time in semi-finals	Lane number
1st fastest	4
2nd fastest	5
3rd fastest	3
4th fastest	6
5th fastest	2
6th fastest	7
7th fastest	1
8th fastest	8

Complete the table below for the final.
Lane 4 has been done for you.

[3 marks]

Lane number	Name
1	
2	
3	
4	Jack
5	
6	
7	
8	

Turn over ▶

2 (c) Ben and Duncan are members of a swimming club.
They both swim in 100 metres freestyle races.

Here are Ben's times, in seconds, for six of his races.

50.6   51.7   52.6   49.6   50.2   49.8

Here are Duncan's times, in seconds, for six of his races.

50.2   49.6   51.2   48.2   49.5   51.3

For the next race the club wants to choose the better swimmer.

Use the data to decide which swimmer the club should choose.
You **must** show your working.

[4 marks]

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outside the
box

2 (d) Erin is the manager of a junior swimming team.

I need to buy
10 swimsuits
5 swim caps
5 tracksuits.

Erin

She sees this advert.

Swimming kit

Swimsuit £49.50   Swim cap £7.00

Tracksuit £58.00

10% off orders over £100

She says,

"The total cost of all the kit I need to buy is **less than** £750"

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

[8 marks]

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3   Supermarket

3 (a)   Amy, Ben, Cathy, David and Eva work at a supermarket.

There are two shifts each day from Monday to Saturday.

Two people work on each shift.

Nobody works more than one shift each day.

Next week

- Eva can only work shift 1
- Cathy can only work shift 2
- Amy **cannot** work on Monday
- Ben can only work on Monday, Thursday and Friday
- David can only work on four days.

Complete a possible rota for Amy, Ben, Cathy, David and Eva for next week.
Use the grids on the opposite page.

[5 marks]

Do not write
outside the
box

Practise on this grid.

	Shift 1		Shift 2	
Monday				
Tuesday				
Wednesday				
Thursday				
Friday				
Saturday				

Put your answer on this grid.

	Shift 1		Shift 2	
Monday				
Tuesday				
Wednesday				
Thursday				
Friday				
Saturday				

Question 3 continues on the next page

Turn over ▶

09

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†3 (b) Amy is paid £7.50 per hour.

One week, she works for 24 hours.

How much is Amy paid that week?

[2 marks]

_____

_____

_____

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

[1 mark]

_____

_____

_____

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3 (c)   David is stacking tins on these shelves.

300 mm

300 mm

Not drawn
accurately

300 mm

370 mm
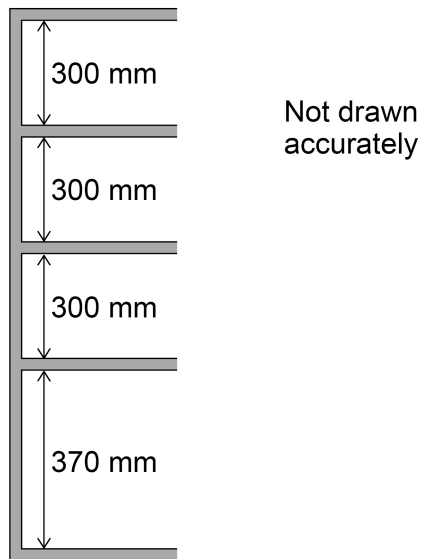
Tins of beans are 120 mm high.
David wants to stack three tins on top of each other.

Will this stack fit on the **bottom** shelf?
You **must** show your working.

[3 marks]

_____

_____

_____

_____

Question 3 continues on the next page

Turn over ▶

Do not write outside the box

3 (d) The supermarket manager buys plastic carrier bags for 1p each.

He sells the bags for 5p each.

He gives 50% of the **profit** on each bag to a local charity.

One month, he sold 460 carrier bags.

How much did he give to the charity for that month?

[4 marks]

15

4   **Pets Corner**

There is a **data sheet** for Pets Corner.

I work at Pets Corner.

Joe

4 (a)   Joe is going to work.

He arrives at the bus stop on Whickham View at 1030
He catches the next number 38 bus.

What time should this bus arrive at Corner House?
Circle your answer.

[1 mark]

1042   1102   1121   1126
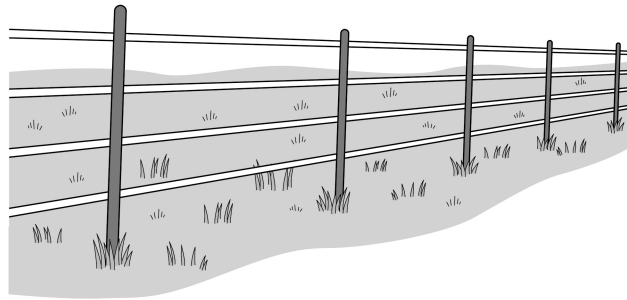

Question 4 continues on the next page

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Do not write outside the box

Joe is making a rectangular enclosure for three alpacas.

Here is a sketch of the fence for the enclosure.

Not drawn accurately

40 m

60 m
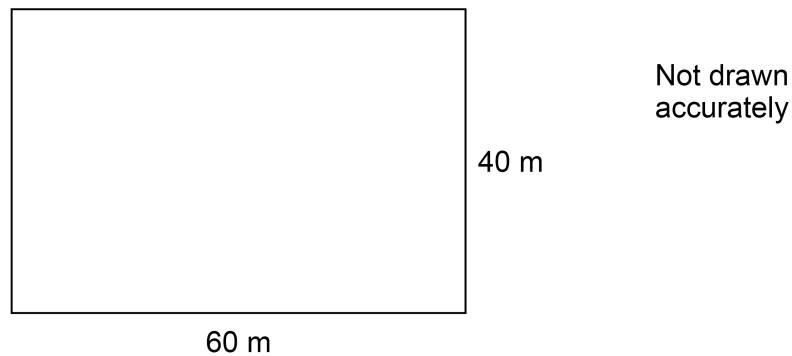
4 (b) The fence has 4 rows of electric tape.

Electric tape is sold in rolls.
Each roll has 150 m of tape.
Joe says

"I need to buy five rolls."

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

[5 marks]

4 (c) The area of the enclosure should be at least half an acre.

1 acre = 4840 square yards

Area of a rectangle = length × width

Joe says,

"The enclosure will be big enough."

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

[6 marks]

Question 4 continues on the next page

Turn over ▶

Do not write outside the box

4 (d) Some visitors to Pets Corner give a donation.

Anna is going to take the donations to the bank.

She starts to fill in the paying-in slip.

Complete the slip.

[3 marks]

	Number	**Amount**
£20	1	£20.00
£10	2	
£5	5	
£2	1	
£1	16	
50p	9	
20p	31	
Other coins		£13.18
	Total	£

15

END OF QUESTIONS