



Please write clearly in block capitals.

Centre number

Candidate number

Surname \_\_\_\_\_

Forename(s) \_\_\_\_\_

Candidate signature \_\_\_\_\_

# Functional Skills Certificate

## FUNCTIONAL MATHEMATICS

Level 1

Tuesday 27 February 2018

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	
<b>TOTAL</b>	

### 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(c) and 4(a). These questions are indicated with a †.

### Advice

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



M A R 1 8 4 3 6 7 0 1

IB/M/Mar18/E7

**4367**

**QAN 500/8703/4**



# FUNCTIONAL SKILLS ONLINE COURSES

- ✓ 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

Functional Skills English Initial Assessment  
English  
13 Questions No Time Limit  
Start Initial Assessment

Functional Skills Maths Initial Assessment  
Maths  
25 Questions Mixed Calculator No Time Limit  
Start Initial Assessment

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

- ✓ Explainer videos on every topic
- ✓ Quick-fire style multiple choice questions
- ✓ Test your knowledge with exam-style questions
- ✓ Written solutions for all questions

Why do we write

Practice Question 1 of 5  
Calculation  
 $76 + 113 = 189$

Question 2 of 5  
Select the correct answer from the list below:  
129  
183  
189  
194

Written Solution  
The area of a trapezium is given by the formula:  $\frac{1}{2} \times (a + b) \times h$   
In this case,  $a = 10$ ,  $b = 14$ , and  $h = 14$   
Total Area =  $\frac{1}{2} \times (10 + 14) \times 14 = 168 \text{ cm}^2$

Course Completion %  
View the completion percentage for the course.  
6.44%

Using Numbers  
16 TOPICS  
27.08% Complete  
Start Learning

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%

- ✓ 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](https://passfunctionalskills.co.uk)

Answer all questions in the spaces provided.

1

### Coast to Coast

There is a **data sheet** for Coast to Coast.

Tim lives in London.

He is planning a cycling holiday.



Tim

I want to cycle the Coast to Coast route.

Tim makes these notes.

Monday	Travel by train from London to Whitehaven Overnight stay at Whitehaven
Tuesday	Start the Coast to Coast route Overnight stay
Wednesday	Cycle further along the route Overnight stay
Thursday	Finish the route Overnight stay in Tynemouth
Friday	Travel by train from Tynemouth to London



0 2

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1 (a) Here are Tim's costs for his holiday.

Train from London to Whitehaven	£51.00
Overnight stays	£45.00 per stay
Other costs	£20.00 per day for 5 days
Train from Tynemouth to London	£54.50

Tim says,

"The total cost of my holiday will be less than £400"

Is he correct?

You must show your working.

[5 marks]

4 over night stays

$$4 \times £45.00 = £180.00$$

$$\text{Train} = £51.00 + £54.50 = £105.50$$

$$\text{Other costs} = £20.00 \times 5 = £100.00$$

$$£180.00 + £105.50 + £100.00 =$$

$$£385.50 < £400$$

Tim is correct.

Question 1 continues on the next page

Turn over ►



0 3

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Tim will

cycle **less than** 100 km on Tuesday

cycle **less than** 100 km on Wednesday

stay overnight at Stanhope on Wednesday night.

- 1 (b) In the table below, complete a possible plan for Tim for Tuesday and Wednesday.

[3 marks]

---



---



---

Day	Start	Finish	Distance cycled that day (km)
Tuesday	Whitehaven	Greystoke	77
Wednesday	Greystoke	Stanhope	79

- †1 (c) On Thursday, Tim will finish the route.

Work out the distance from Stanhope to Tynemouth.

[2 marks]

$$225 - 156 = 69 \text{ km.}$$


---



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---

Check your answer.

Show how you have done your check.

[1 mark]

$$156 + 69 = 225 \text{ km.}$$


---



---



0 4

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- 1 (d) On Thursday, Tim wants to meet a friend in Newcastle at 11.00 am.  
He will cycle 25 km each hour.  
He says,  
"I should leave Stanhope by 9.00 am"

Is he correct?

You **must** show your working.

[4 marks]

$$\begin{array}{r} 206 - 156 = 50 \text{ km to cycle} \\ \hline 50 \div 25 = 2 \text{ hours} \\ \hline 9:00\text{am} + 2 \text{ hours} = 11:00\text{am} \\ \hline \text{Tim is correct.} \end{array}$$

Turn over for the next question

15

Turn over ►



0 5

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**2 Heating**  
There is a data sheet for Heating.

**2 (a)** Jack was born before 5 August 1953  
In the 2017 qualifying week he was 72 years old.  
He lived alone.

How much was his winter fuel payment?  
Circle your answer.

[1 mark]

£100

£150

£200

£300

**2 (b)** Ken and Tom lived together in 2017  
Ken was born in 1932  
Tom was born in 1951

How much did they **each** get for their winter fuel payment?

[3 marks]

$$2017 - 80 = 1937$$

Ken is over 80

Tom is under 80

Ken gets £200

Tom gets £100



06

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- 2 (c) Ezra decides to insulate his loft.  
He reads this advert.

**Best Builders**

We will insulate your loft for £450

Insulating his loft will save £140 per year in heating costs.

Ezra says,

"In 3 years I will save more than I pay Best Builders."

Is he correct?

You must show your working.

[3 marks]

$$£140 \times 3 = £420 < £450.$$

No he is £30 short.

Question 2 continues on the next page

Turn over ►

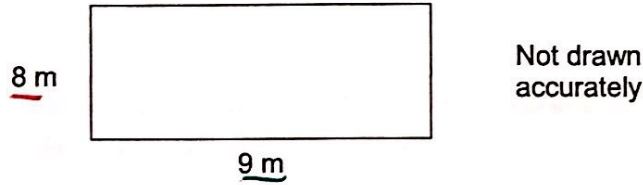


0 7

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Here is a sketch of the rectangular loft in Prita's house.



- 2 (d) Show that the area of the loft is 72 square metres.

[1 mark]

$$8 \times 9 = 72 \text{ m}^2$$

- 2 (e) The loft needs top layer insulation.

Top layer insulation £25 per roll

One roll covers an area of 6 square metres

*Special offer*

Pack of 4 rolls £79

Prita buys the rolls she needs.

How much does Prita save by using the special offer?

[5 marks]

$$72 \div 6 = 12 \text{ packs}$$

$$12 \times 25 = \pounds 300$$

$$12 \div 4 = 3 \text{ packs of 4}$$

$$3 \times 79 = \pounds 237$$

$$\pounds 300 - \pounds 237 = \pounds 63$$



**3 Chocolate eggs**

Carly makes and sells chocolate eggs in her shop.

- 3 (a)** To make the eggs, Carly has to heat the chocolate to 43 degrees Celsius. Her thermometer only measures in degrees Fahrenheit.

Use these steps to convert degrees Celsius to degrees Fahrenheit.

- Step 1** Work out temperature in degrees Celsius  $\times 9$   
**Step 2** Work out answer to **Step 1**  $\div 5$   
**Step 3** Work out answer to **Step 2**  $+ 32$

Convert 43 degrees Celsius to degrees Fahrenheit.

[4 marks]

$$43 \times 9 = 387$$

$$387 \div 5 = 77.4$$

$$77.4 + 32 = 109.4^{\circ}\text{F}$$

- 3 (b)** On Tuesday, Carly makes these eggs.

	Milk chocolate	Dark chocolate
Small eggs	18	10
Large eggs	9	6

In total, how many milk chocolate eggs does she make on Tuesday?  
Circle your answer.

[1 mark]

9

18

27

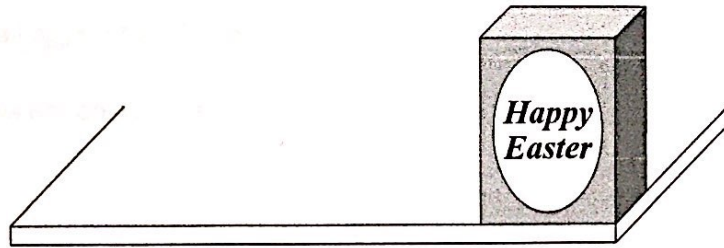
43

Question 3 continues on the next page

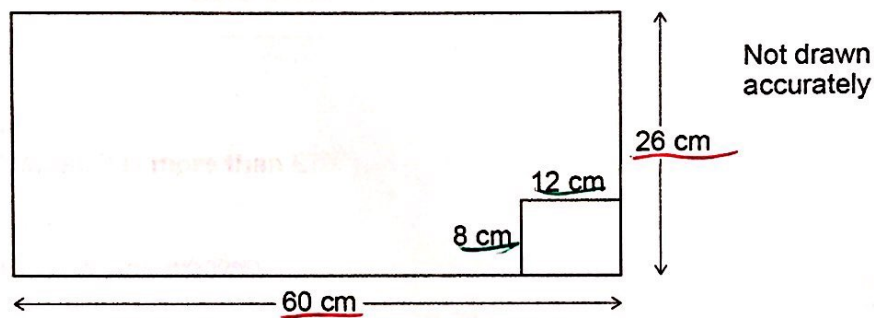
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- 3 (c) Carly puts each large egg in a box.  
She puts the boxes on the top of a shelf as shown.



The base of each box is a 12 cm by 8 cm rectangle.  
The top of the shelf is a 60 cm by 26 cm rectangle.



Only one layer of boxes can be put on the shelf.

Carly says,

"I can fit 15 boxes on the shelf."

Is she correct?

You **must** show your working.

[4 marks]

$$60 \div 12 = 5$$

$$26 \div 8 = 3$$

$$5 \times 3 = 15$$

Yes.



10

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3 (d) One week, Carly sells

25 large eggs for £3.50 each

and

48 small eggs for £1.10 each.

The table shows her costs for the week.

Chocolate	<u>£40.15</u>
Boxes	<u>£12.25</u>
Other costs	<u>£14.70</u>

She says,

"My profit is more than £70"

Is she correct?

You must show your working.

[7 marks]

$$25 \times \pounds 3.50 = \pounds 87.50$$

$$48 \times \pounds 1.10 = \pounds 52.80$$

$$\pounds 87.50 + \pounds 52.80 = \pounds 140.30$$

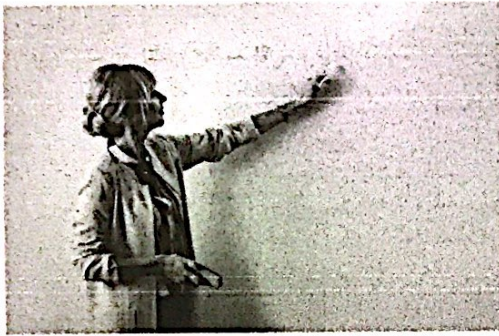
$$\pounds 40.15 + \pounds 12.25 + \pounds 14.70 = \pounds 67.10$$

$$\pounds 140.30 - \pounds 67.10 = \pounds 73.20$$

which is more than £70.

She is correct.



**4 Competition****Mrs Scott**

My students are taking part in a competition. I need a test paper for each student.

- †4 (a) Mrs Scott needs 115 test papers.  
The papers are in packs of 5  
How many packs does she need?

**[2 marks]**

$$115 \div 5 = 23$$

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

**[1 mark]**

$$23 \times 5 = 115$$



1 2

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- 4 (b) Kim and Ellie do some practice papers.  
Here are their marks.

	Kim	Ellie
Paper 1	52	56
Paper 2	45	48
Paper 3	54	50
Paper 4	51	54

Ellie says,

"On average, I got higher marks than Kim."

Is she correct?

You **must** show your working.

[3 marks]

$$\frac{56+48+50+54}{4} = \frac{208}{4} = 52$$

$$\frac{52+45+54+51}{4} = \frac{202}{4} = 50.5$$

$$52 > 50.5$$

Ellie is correct.

- 4 (c) Each question on the test paper has five answers to choose from.  
For one question, Kim guesses the answer at random.

What is the probability that her guess is correct?

[1 mark]

0.2

Question 4 continues on the next page

Turn over ►



1 3

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- 4 (d) There are 15 questions on the test paper.  
Here are the scoring instructions.

	Correct answer	Incorrect answer
Questions 1 to 10	<u>5 points</u>	<u>0 points</u>
Questions 11 to 15	<u>6 points</u>	<u>-1 point</u>

Here are Kim's results.

Questions 1 to 10      9 correct answers

Questions 11 to 15      2 correct answers

All of her other answers were incorrect.

Did she score **more than** 55 points?

You **must** show your working.

[5 marks]

$$\begin{array}{l}
 1-10: \qquad \qquad \qquad 11-15: \\
 \hline
 9 \text{ correct } 1 \text{ wrong} \qquad \qquad 2 \text{ correct } 3 \text{ wrong} \\
 \hline
 9 \times 5 + 1 \times 0 = 45 \qquad \qquad 2 \times 6 + 3 \times (-1) = 9 \\
 \hline
 45 + 9 = 54 < 55 \\
 \hline
 \text{No.}
 \end{array}$$



1 4

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- 4 (e) Altogether, 68 000 students take part in the competition.  
30% of the students win an award.  
Half of the awards are gold.

Is the number of gold awards **more than** 10 000?  
You **must** show your working.

[4 marks]

$$30\% = 0.3$$

$$68000 \times 0.3 = 20400$$

$$20400 \div 2 = 10200$$

$$10200 > 10000$$

Yes.

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END OF QUESTIONS



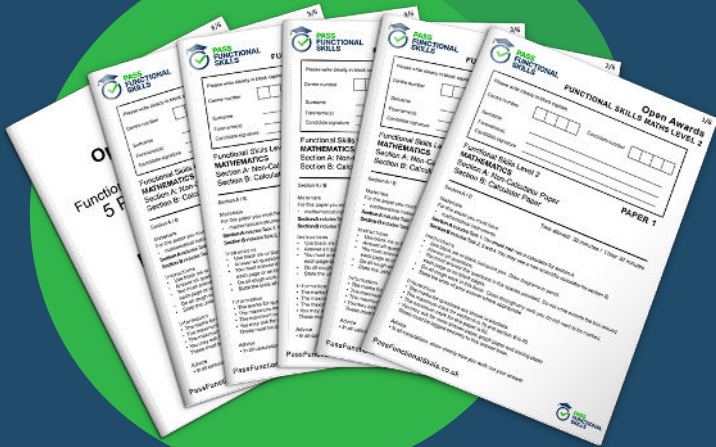
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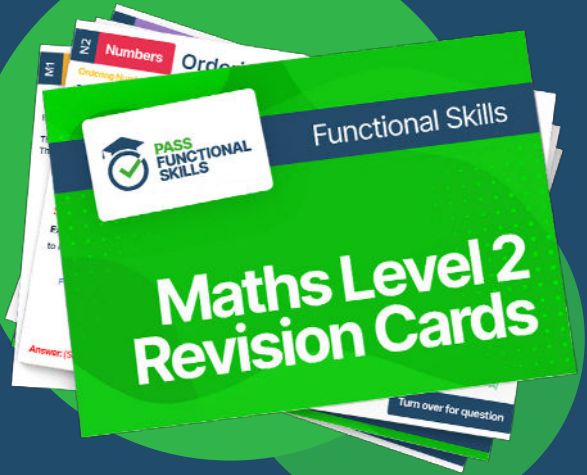




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