AQA

PASS FUNCTIONAL SKILLS

Please write clearly in block capitals.

Centre number | | | | | | Candidate number | | | | |

Surname _____

Forename(s) _____

Candidate signature _____

Functional Skills Certificate
FUNCTIONAL MATHEMATICS

Level 2

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).

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.

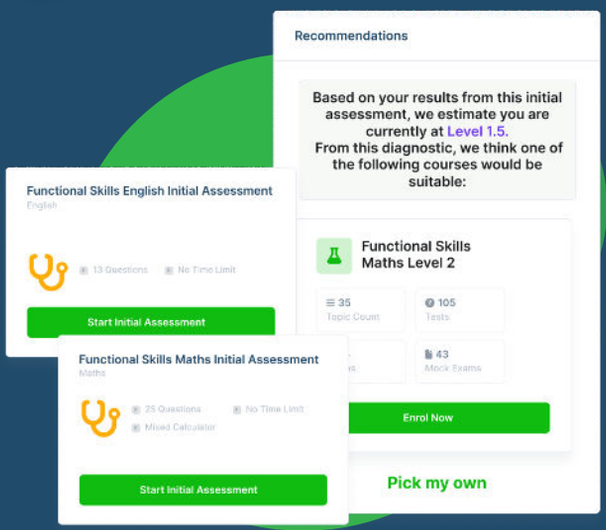
Information
- The marks for questions are shown in brackets.
- The maximum mark for this paper is 60.
- You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer book.
- Evidence of checking is specifically assessed in Questions 3(a) and 4(a). These questions are indicated with a †.

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

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

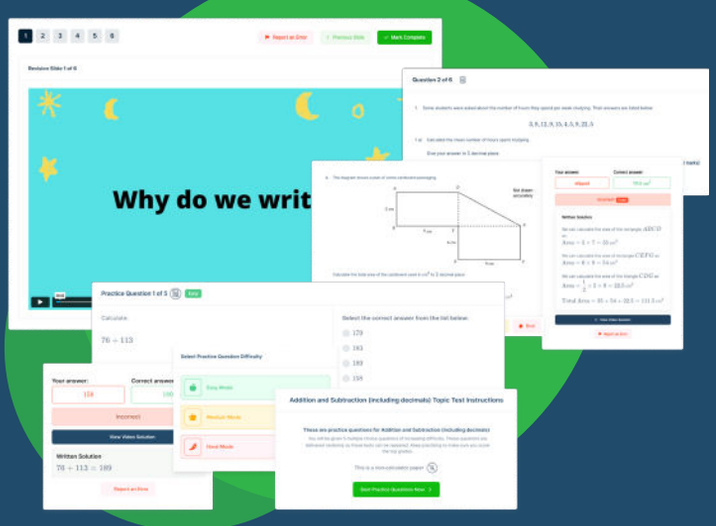
PASS FUNCTIONAL SKILLS

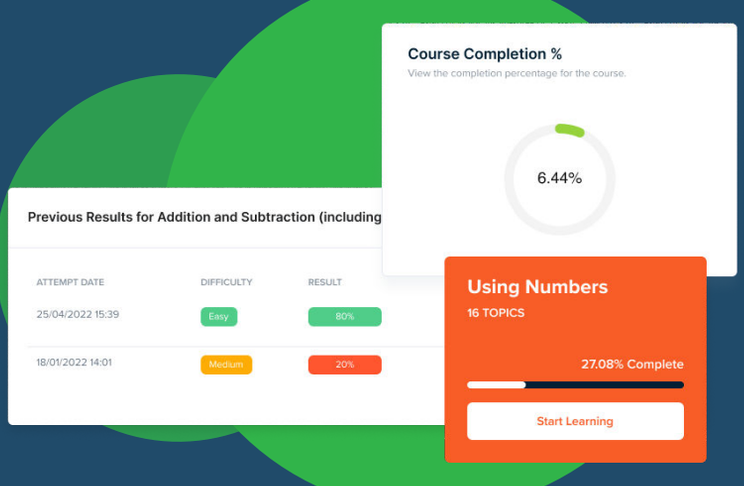
FUNCTIONAL SKILLS ONLINE COURSES



- 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

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





- 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.

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1 **Heating**

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

1 (a) Jack and Ann lived together in 2017
Jack was born in 1930 87
Ann was born in 1951 66

How much in **total** was their winter fuel payment?
Circle your answer.

[1 mark]

£250 (£300) £350 £500

1 (b) Leon was born in 1951 and lives alone.
To pay his 2018 winter fuel bill he will
use his 2017 winter fuel payment
and
save some money each week for 12 weeks.

He expects his 2018 winter fuel bill to be £320
He says,
"If I save £10.50 each week I will have enough to pay a £320 bill."

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

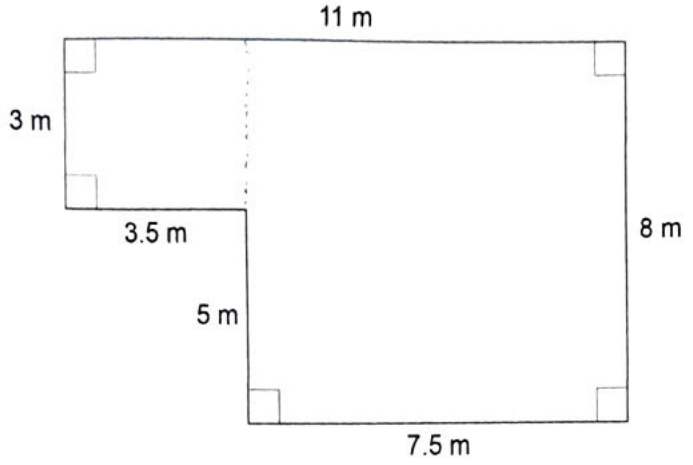
[4 marks]

His WFP is £200.
£10.5 × 12 = £126.
⇒ £200 + £126 = £326.

Yes, he is correct.

Question 1 continues on the next page

Prita's house has an L-shaped loft with no insulation.



Not drawn accurately

1 (c) Show that the area of the loft is 70.5 square metres.

[2 marks]

$7.5m \times 8m = 60m^2$.

$3.5m \times 3m = 10.5m^2$

$+$

$70.5\ m^2$

Prita decides to insulate her loft.

She reads the instructions on the data sheet.

1 (d) Subtract 10% from the area of Prita's loft.

[2 marks]

$70.5 - (0.1 \times 70.5) = 63.45\ m^2$.

1 (e)

Bottom layer insulation

£26 per single roll

One roll covers an area of 11 square metres

Special offer

*Buy more than 5 rolls and **all** rolls are half price*

Top layer insulation

£24.75 per single roll

One roll covers an area of 6.5 square metres

Special offer

Pack of 4 rolls £80

Prita buys the packs and single rolls she needs in the cheapest way possible.

How much does she pay in total?

[7 marks]

$\frac{63.45}{11} = 5.768 \ldots \rightarrow$ 6 rolls (Bottom layer) needded.

$6 \times 0.5 \times £26 = £78.$

$\frac{70.5}{6.5} = 10.846 \rightarrow$ 11 rolls (Top layer) needed.

$£80 + £80 + (3 \times £24.75)$

$= £234.25$

$£234.25 + £78 = £312.25.$

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2 **Coast to Coast**

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

Tim and Maisy live in London.

They are planning a holiday cycling the Coast to Coast route.

Maisy **Tim**

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	Cycle further along the route Overnight stay
Friday	Finish the route Overnight stay in Tynemouth
Saturday	Travel by train from Tynemouth to London

Use baggage transfer between each overnight stay

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2 (a) Here are the costs for their holiday.

Train from London to Whitehaven	£51.00 per person
Overnight stays	£35.00 per person per night
Other costs	£20.00 per person per day for 6 days
Train from Tynemouth to London	£54.50 per person
Baggage transfer	£8.50 per transfer

Tim and Maisy only have one piece of baggage between them.

Tim says,

"The total cost of our holiday will be **less than** £800"

Is he correct?

You **must** show your working.

[5 marks]

5 overnight stays: 5 x £35 = £175 per person

Other costs: 6 x £20 = £120 per person.

Baggage transfer: 4 x £8.50 = £34.

(2 x £51) + (2 x £175) + (2 x £120) + (2 x £54.50) + £34

= £835.

No, he is incorrect.

Question 2 continues on the next page

Turn over ▶

Do not write outside the box

Tim and Maisy will

cycle about the same distance on each of Tuesday, Wednesday and Thursday

stay overnight at Stanhope on Thursday night.

2 (b) Complete the table. **[3 marks]**

$\frac{156\text{km}}{3} = 52\text{km}$ per day.

Day	Start	Finish	Distance cycled that day (km)
Tuesday	Whitehaven	Keswick	50
Wednesday	Keswick	Melmerby	53
Thursday	Melmerby	Stanhope	53

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2 (c) On Friday, Tim and Maisy will

cycle at an average speed of 30 km per hour
stop in Newcastle for 2 hours.

Maisy says,

"If we leave Stanhope at 11 am we will be in Tynemouth by 3.20 pm"

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

[5 marks]

3:20pm − 11am = 4hr 20min. = 260 min.

Considering 2hr stop, they travel for

260 − 120 = 140 mins, or $2\frac{1}{3}$ hrs.

225 − 156 = 69km.

$\frac{69\text{ km}}{30\text{ km h}^{-1}}$ = 2.3 hrs. < $2\frac{1}{3}$ hrs.

She is correct.

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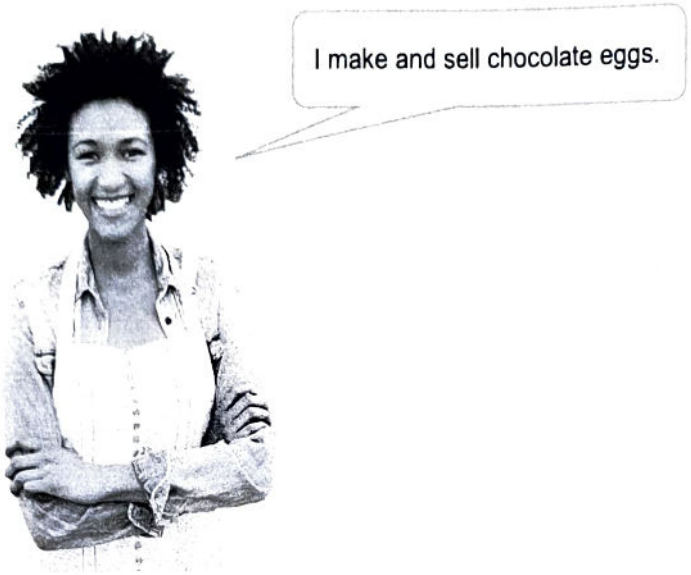
Turn over for the next question

3 Chocolate eggs



Carly

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

> Use this formula to convert degrees Celsius to degrees Fahrenheit.
>
> $F = 1.8C + 32$
>
> F is the temperature in degrees Fahrenheit
>
> C is the temperature in degrees Celsius

Convert 43 degrees Celsius to degrees Fahrenheit.

[2 marks]

$(43 \times 1.8) + 32 = 109.4^{\circ}F.$

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

[1 mark]

$\frac{109.4 - 32}{1.8} = 43.$

3 (b) One week, Carly sells these eggs.

	White chocolate	Milk chocolate	Dark chocolate
Small eggs	20	42	36
Large eggs	13	25	16

How many **more** milk chocolate eggs than dark chocolate eggs does she sell?

Circle your answer.

[1 mark]

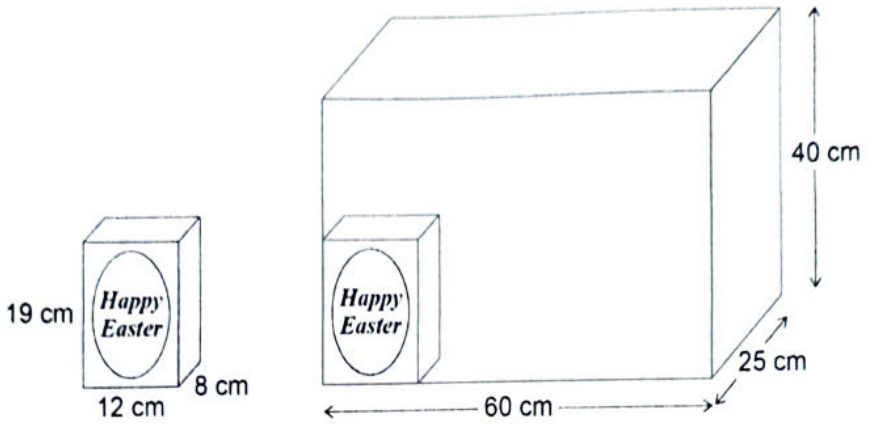
9 15 17 44

Question 3 continues on the next page

3 (c) Carly puts each large egg in a box.

She packs the boxes into crates.

The boxes are all packed in the same way as shown.



Work out the **maximum** number of boxes she can fit in a crate.

[4 marks]

$\frac{60}{12} = 5$, $\frac{25}{8} = 3\frac{1}{8} \rightarrow 3$, $\frac{40}{19} = 2\frac{2}{19} \rightarrow 2$.

$5 \times 3 \times 2 = 30$.

3 (d) Carly takes 98 small eggs and 54 large eggs to an Easter fair.

She sells

65 small eggs for £1.60 each
the rest of the small eggs for £1.25 each

$\frac{2}{3}$ of the large eggs for £3.50 each
the rest of the large eggs for £2.50 each.

The total cost of making the eggs was £150

She says,

"My profit is **more than** £180"

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

[6 marks]

98 - 65 = 33.

Small: (65 × £1.60) + (33 × £1.25) = £145.25

$\frac{2}{3}$ × 54 = 36, 54 − 36 = 18

Large: (36 × £3.50) + (18 × £2.50) = £171.

£145.25 + £171 = £316.25.

£316.25 − £150 = ~~£166~~ £166.25

No, she is incorrect.

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Turn over for the next question

4 **Competition**

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

Mrs Scott

†4 (a) Mrs Scott needs 163 test papers.

The papers are in packs of 5

How many packs does she need?

[2 marks]

$\frac{163}{5} = 32.6 \Rightarrow 33$

Check your answer.

Show how you have done your check.

[1 mark]

$32.6 \times 5 = 163.$

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4 (b) Kim and Ellie do some practice papers.

Here are their marks.

Kim	61	50	54	53	63	56	50	55
Ellie	51	54	62	57	60	55		

Ellie says,

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

Is she correct?

You **must** show your working.

[4 marks]

Kim: $61 + 50 + \ldots + 50 + 55 = 442$

$\frac{442}{8} = 55.25$

Ellie: $51 + 54 + \ldots + 60 + 55$

$\frac{339}{6} = 56.5$

Yes, she 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 **not** correct?

[1 mark]

0.8

4 (d) There are 15 questions on the test paper.

Here are the scoring instructions.

	Correct answer	Incorrect answer	No attempt (–)
Questions 1 to 5	5 points	0 points	0 points
Questions 6 to 10	6 points	–1 point	0 points
Questions 11 to 15	6 points	–2 points	0 points

The grid below shows the correct answers and Kim's answers.

Question	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Correct answer	B	D	D	E	C	A	D	A	E	E	B	C	E	C	D
Kim's answer	B	D	A	E	C	B	D	A	A	–	E	–	–	C	C
Points	5	5	0	5	5	-1	6	6	-1	0	-2	0	0	6	-2

Work out the **total** number of points Kim scores.

[4 marks]

5+5+... +6 -2 = 32.

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4 (e) Altogether, 84 000 students take part in the competition.

15% of the students win an award.

The awards are gold or silver.

There are four times as many silver awards as gold awards.

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

[5 marks]

84000 × 0·15 = 12600 awards.

G : S = 1 : 4. 1+4 = 5.

$\frac{12600}{5}$ = 2520 gold,

2520 × 4 = 10800 silver

Yes, there are more than 10 000 silver awards.

END OF QUESTIONS

17

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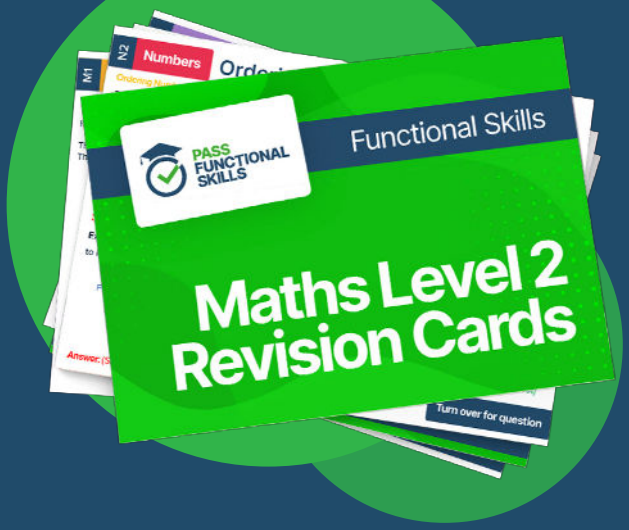
ANSWER IN THE SPACES PROVIDED

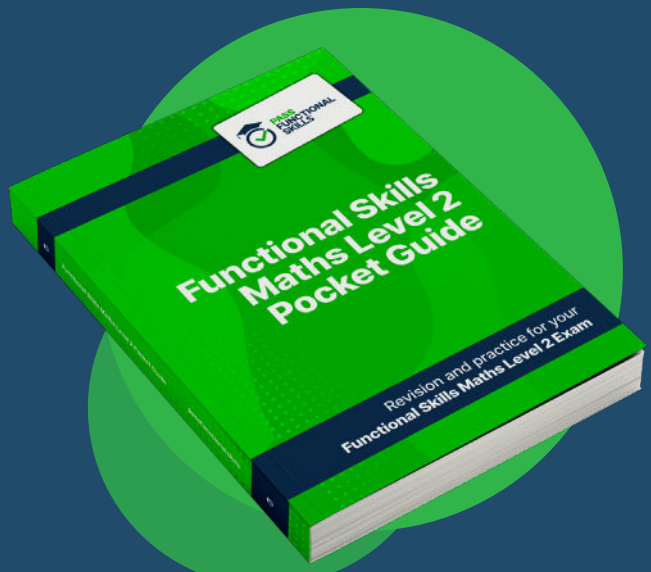
PASS FUNCTIONAL SKILLS

Functional Skills Maths
Level 2 Practice Papers



Functional Skills Maths
Level 2 Revision Cards

Functional Skills English Level 2
Practice Papers & Revision Cards



Functional Skills Maths
Level 2 Pocket Revision Guide

Or visit
passfunctionalskills.co.uk