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

Wednesday 16 May 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.

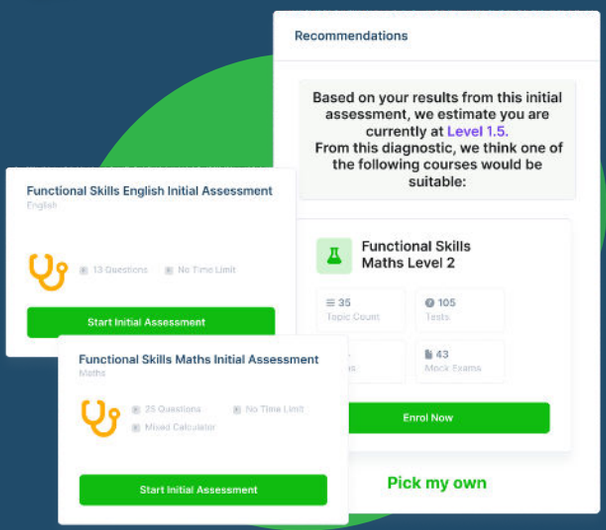
Information
- The marks for questions are shown in brackets.
- The maximum mark for this paper is 60.
- You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer book.
- Evidence of checking is specifically assessed in Questions 1(a) and 4(b). These 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	

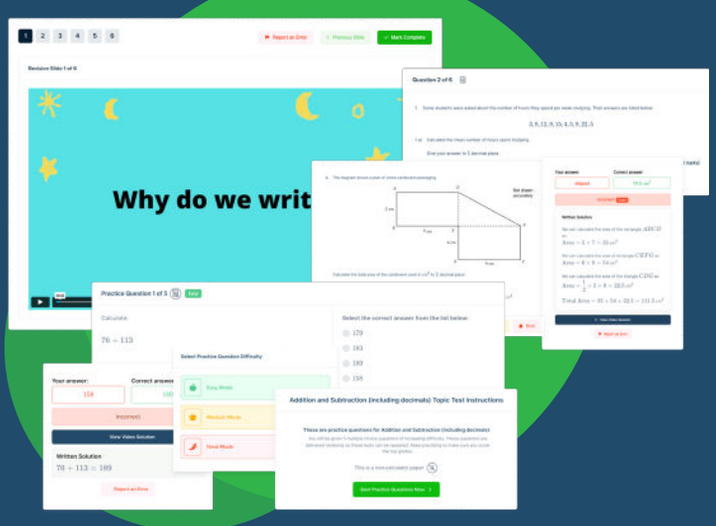
PASS FUNCTIONAL SKILLS

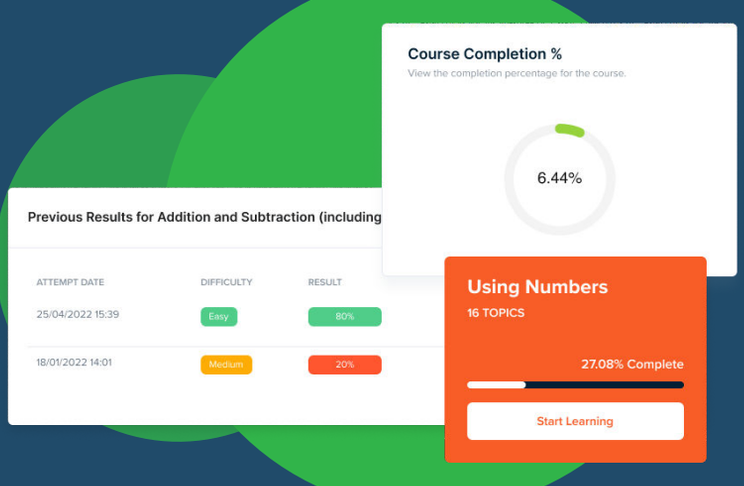
FUNCTIONAL SKILLS ONLINE COURSES



- 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

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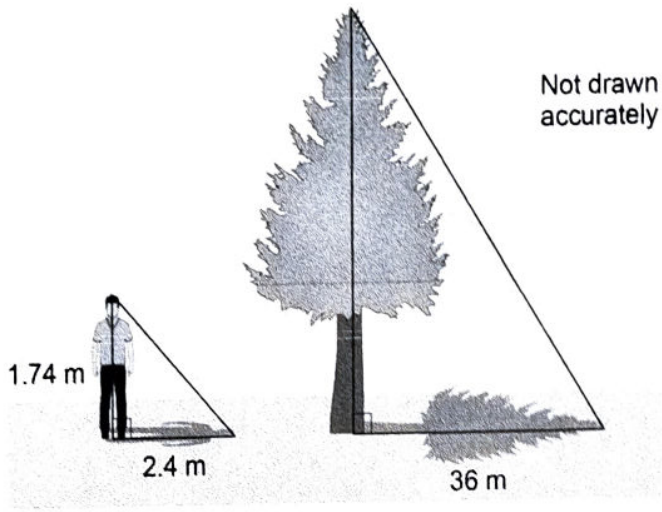
Answer **all** questions in the spaces provided.

1 **Winset Park**

There is a **data sheet** for Winset Park.

Jeff works in Winset Park.

†1 (a) Jeff wants to work out the height of this tree.



Use the formula on the data sheet to work out the height of the tree.

[2 marks]

$\frac{1.74}{2.4} \times 36 = 26.1\text{m}.$

Check your answer.

Show how you have done your check.

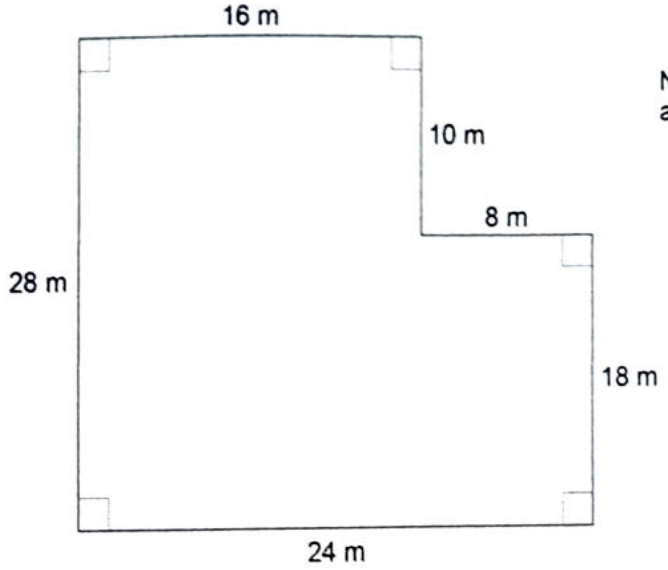
[1 mark]

$\frac{26.1}{36} \times 2.4 = 1.74\text{ m}.$

Turn over ▶

Jeff is designing a new playground for the park.

Here is a sketch of the playground.



Not drawn accurately

1 (b) Show that the area of the playground is 592 m^2

[2 marks]

$(16m \times 28m) + (8m \times 18m) = 592m^2$

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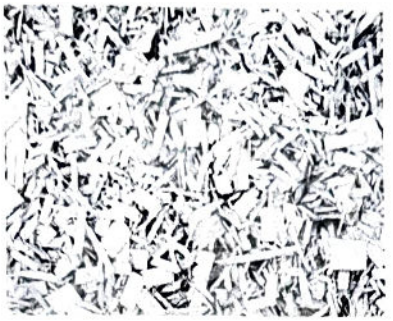
1 (c) Jeff wants a safe surface for the playground.

He decides to use woodchips.

Woodchips



Large bag	**Small bag**
covers 4.8 m^2	covers 0.3 m^2
£52.50 each	£3.82 each

Work out the cheapest possible cost.

Include the number of each size of bag Jeff needs to buy.

[6 marks]

$\frac{592}{4.8} = 123.\dot{3}$ large bags, $123 \times £52.50 = £6457.50$

$123 \times 4.8m^2 = 590.4m^2$

$592 - 590.4 = 1.6m^2$

$\frac{1.6}{0.3} = 5.\dot{3} \rightarrow 6$ small bags, $6 \times £3.82 = £22.92$

6 small bags are cheaper than 1 large bag, so the combination is 123 large, 6 small, costing $£6457.50 + £22.92 = £6480.42$.

Turn over ▶

1 (d) The table shows the items Jeff wants for the playground.

	Position	Space needed for each item
1 climbing frame	Anywhere	5 m by 5 m square
2 swing sets	At least 1 in the part nearer the north end	8 m by 4 m rectangle
3 rockers	All in the part nearer the south end	2 m by 2 m square
1 roundabout	Anywhere	6 m diameter circle
1 sandpit	In the south-west corner	4 m by 2 m rectangle

Show a possible design on the scale drawing opposite.

[5 marks]

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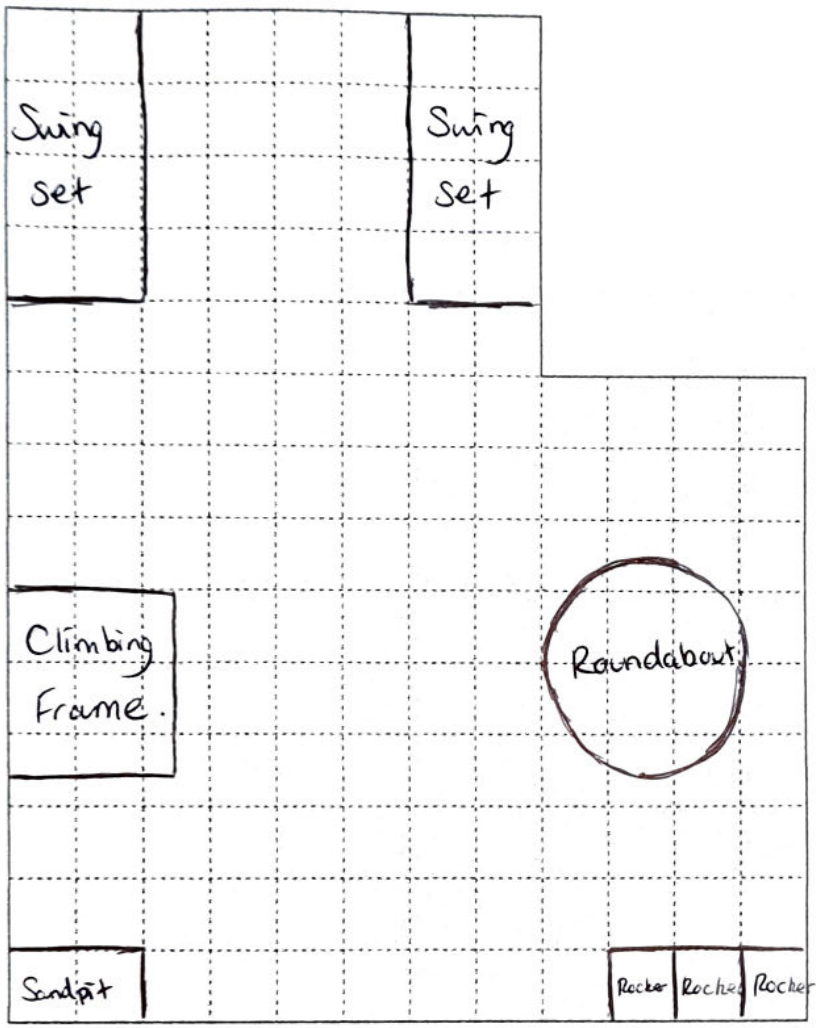
Scale: 1 cm represents 2 m

North



South

16

2 Garden birds

Here are some birds eating a fat cake.

Jenny mixes bird feed and lard to make fat cakes.

Bird feed

Lard

In a fat cake, the weight of bird feed and the weight of lard are in the ratio 2 : 1

2 (a) Each fat cake weighs 120 grams.

Show that Jenny needs 80 grams of bird feed for each fat cake.

[2 marks]

$2:1 \Rightarrow \frac{2}{2+1} = \frac{2}{3}$ is bird feed.

$\frac{2}{3} \times 120g = 80g$. bird feed.

Do not write outside the box

2 (b) Jenny wants to make 300 fat cakes.

She wants $\frac{3}{4}$ of the bird feed to be nuts.

Nuts cost £3.20 per kilogram.

Packs of lard weigh 250 grams and cost 39p each.

Jenny says,

"For 300 fat cakes, in total the nuts and lard will cost **less than** £75"

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

[8 marks]

$300 \times 80g = 300 \times 0.08kg$

$= 24kg$ bird feed

$24kg \times \frac{3}{4} = 18kg$ nuts.

$18kg \times £3.20/kg = £57.60$ for nuts.

$80g$ bird feed $\rightarrow 120 - 80 = 40g$ lard.

$= 0.04kg$ lard per cake.

$0.04kg \times 300 = 12kg$ lard.

$0.25kg$ lard $= 39p = £0.39$

$\frac{12}{0.25} \times £0.39 = £18.72$.

$£57.60 + £18.72 = £76.32$.

Do not write outside the box

2 (c) One day, 100 students at Jenny's school took part in a survey.
They each counted the number of sparrows in their garden at 8 am
Here are the results.

Number of sparrows	Frequency
2	3
3	14
4	27
5	46
6	10

Work out the mean number of sparrows.
Give your answer to 1 decimal place.

[4 marks]

$(2\times3) + (3\times14) + (4\times27) + (5\times46) + (6\times10)$

$= 446$

$\frac{446}{100} = 4.46 \rightarrow 4.5.$

14

Do not write outside the box

3 Saving money

There is a **data sheet** for Saving money.

3 (a) Sunita has a bank account.

Next year, she expects to get £110 **interest** but pay **fees** of £60

This table shows the bills Sunita pays and the **cashback** rates the bank pays her.

	Phone	Water
Bill	£38 per month	£372 per year
Cashback rate	3%	2%

She says,

"Next year, the total interest and cashback will be **at least** £70 more than the fees."

Is she correct?

You **must** show your working.

[6 marks]

£38 x 12 = £456 per year (Phone).

£456 x 0.03 = £13.68 (Phone)

£372 x 0.02 = £7.44 (Water)

£13.68 + £7.44 + £110 - £60

= £71.12.

Yes, she is correct.

Do not write outside the box

Ethan shops at Westco supermarket and has a Westco credit card.

3 (b) Ethan has 6000 points.

How much are they worth if he uses them to help pay for a holiday?

Circle your answer.

[1 mark]

£60 (£180) £240 £1800

3 (c) Next year, Ethan expects to use his Westco credit card at Westco to spend

£3200 on groceries
and
£900 on petrol.

He expects to use this credit card in other shops.

Show that if he spends £2600 in other shops he will earn 5000 points in total.

[5 marks]

£3200 = 3200 pts (groceries).

£900 = 450 pts (petrol)

£3200 + £900 = £4100

$\frac{4100}{4}$ = 1025 pts (credit card use at Westco).

$\frac{£2600}{£8/pt}$ = 325 pts (CC use elsewhere).

3200 + 450 + 1025 + 325

= 5000 pts.

Do not write outside the box

3 (d) Next week, Joe plans to spend

£25 on groceries at Westco

and

£165 on meals in restaurants.

He is going to use 3200 points to pay for as much of this as possible.

Work out the **least** amount of money he would also need to pay.

[3 marks]

3200 x 4p = 12800p = £128 for use in restaurants.

£165 - £128 = £37 to spend in restaurants

£37 + £25 = £62 to spend in total.

15

Turn over for the next question

Do not write outside the box

4 Fitness club

4 (a) The table shows the price of membership at a fitness club.

Type of membership	Price per year
Adult	£240 + 20% VAT
Senior (aged 60 or over)	£160 + 20% VAT
Junior (aged 16 or under)	£110 + 20% VAT
Family (2 adults and 2 juniors)	£719 **including** VAT

Mr and Mrs Jones are both aged 42
They have two sons, aged 14 and 16

They all want to buy membership of the fitness club for a year.

Mrs Jones says,
"Family membership will save us **more than** £120"

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

[6 marks]

2 x £240 x 1.2 = £576 (adults)

2 x £110 x 1.2 = £264 (juniors)

£576 + £264 = £840 total.

£840 - £719 = £121

Yes, she is correct.

Do not write outside the box

†4 (b) Lee runs on a treadmill.
He burns 688 calories per hour.

How many calories does he burn in $7\frac{1}{2}$ minutes?

[2 marks]

$\frac{688}{60} = 11.46$ per minute.

$11.46 \times 7.5 = 86$ kcal.

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

[1 mark]

$\frac{86}{7.5} \times 60 = 688$ kcal per hour.

Question 4 continues on the next page

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4 (c) Amy, Kim, Sal and Tom are the trainers at the fitness club.

Two trainers work each day from Monday to Thursday.
Three trainers work on Friday, Saturday and Sunday.

Complete a possible rota for next week so that

- Amy works on five days
- Kim, Sal and Tom each work on four days
- Amy does not work on Sunday
- nobody works for **more than** three days in a row.

[3 marks]

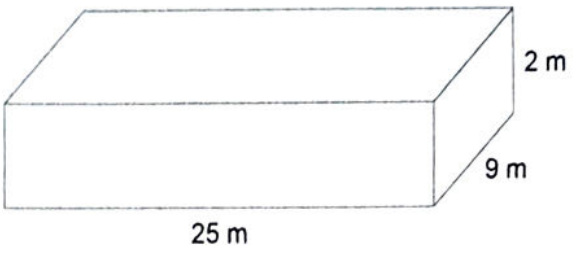
Practise on this rota.

	Trainer 1	Trainer 2	Trainer 3
Monday			
Tuesday			
Wednesday			
Thursday			
Friday			
Saturday			
Sunday			

Put your answer on this rota.

	Trainer 1	Trainer 2	Trainer 3
Monday	A	K	
Tuesday	A	T	
Wednesday	A	S	
Thursday	K	T	
Friday	A	K	S
Saturday	A	S	T
Sunday	K	S	T

4 (d) This cuboid represents the water in the swimming pool at the fitness club.



Not drawn accurately

$1\ m^3 = 1000$ litres

There should be 0.0004 fluid ounces of chlorine for each litre of water.

How many fluid ounces of chlorine should there be in the pool?

[3 marks]

$25 \times 9 \times 2 = 450\ m^3$

$\frac{450\ m^3}{1\ m^3} \times 1000\ L = 450\,000\ L$ water

$450\,000\ L \times 0.0004 = 180\ L$ chlorine

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END OF QUESTIONS

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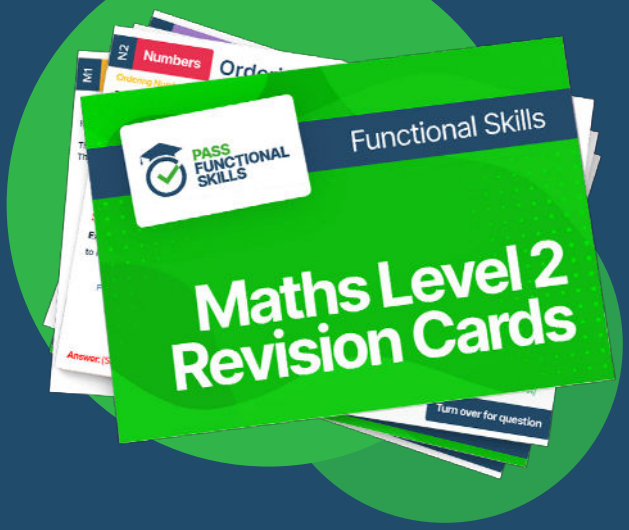
ANSWER IN THE SPACES PROVIDED

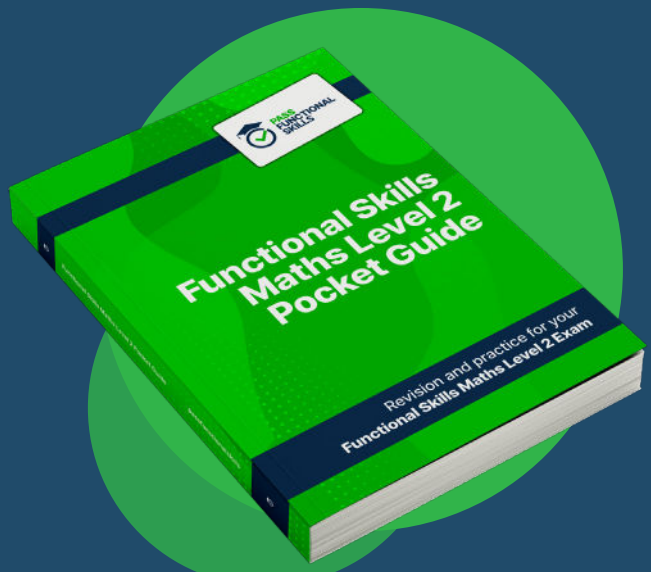
PASS FUNCTIONAL SKILLS

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

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