AQA

Please write clearly in block capitals.

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

Surname _____

Forename(s) _____

Candidate signature _____

I declare this is my own work.

Functional Skills Level 2 MATHEMATICS

Paper 2 Calculator

Tuesday 28 February 2023 Afternoon Time allowed: 1 hour 30 minutes

Materials

For this paper you must have:
- a calculator
- mathematical instruments.

For Examiner's Use	
Question	Mark
1–7	
8	
9	
10	
11	
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.

Advice

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

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QAN 603/4258/4

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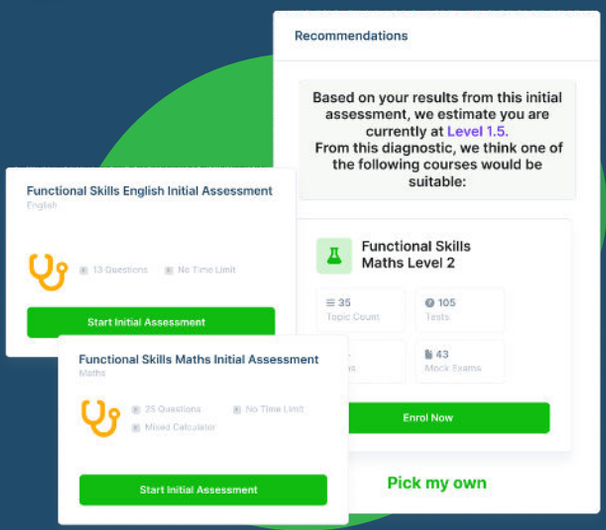
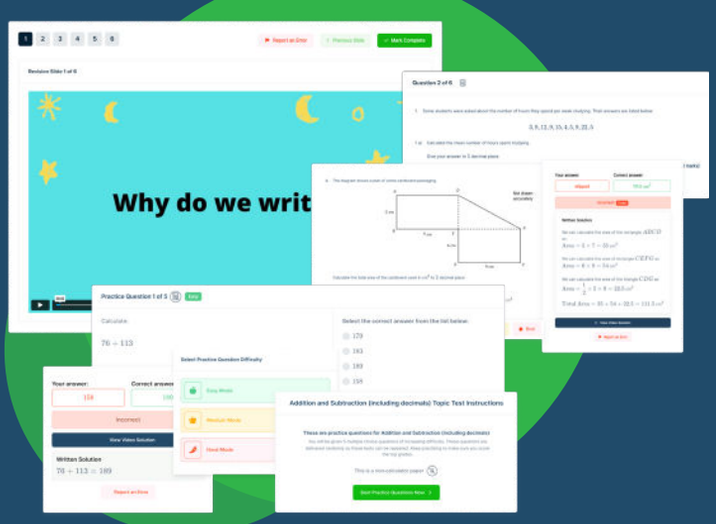
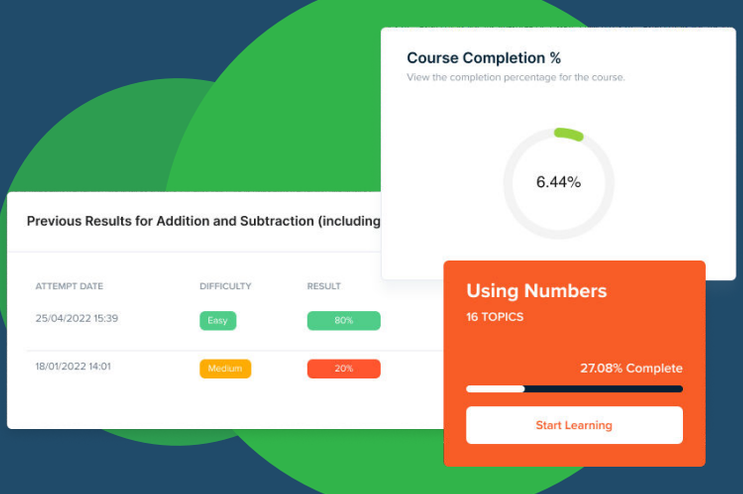
FUNCTIONAL SKILLS ONLINE COURSES



- 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

Do not write outside the box

Section A

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

1 Circle the **largest** number.

[1 mark]

2.4 (2.41) 2.396 2.409

2 Write the number two million, four hundred and eight thousand in digits.

[1 mark]

2408 000

Answer _____

3 Write the ratio 150 : 240 in its simplest form.

[2 marks]

÷10 (150 : 240) ÷10

÷3 (15 : 24) ÷3

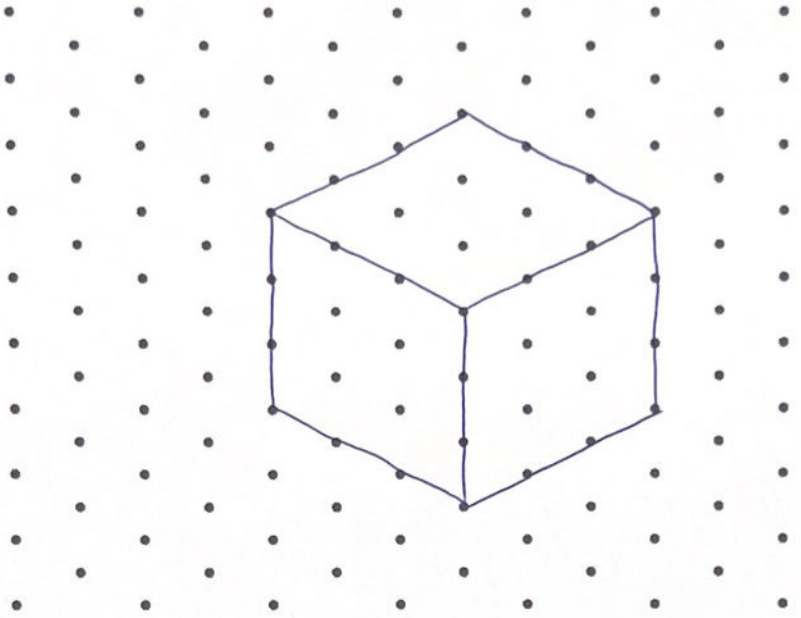
5 : 8

Answer 5 : 8

4 A cube has side length 3 cm

Use the centimetre isometric paper to draw the cube.

[2 marks]



5 Complete the table to show 3% as a decimal and a fraction.

[2 marks]

Percentage	Decimal	Fraction
3%	0.03	$\frac{3}{100}$

Do not write outside the box

6 An object has mass 59.5 grams and volume 17 cm^3

Work out the density of the object.

[2 marks]

density = 59.5 ÷ 17

= 3.5

Answer 3.5 grams/cm^3

7 Calculate $\frac{7}{8} + \frac{1}{4}$

Give your answer as a mixed number.

[2 marks]

×2

$\frac{1}{4} = \frac{2}{8}$

×2

$\frac{7}{8} + \frac{2}{8} = \frac{9}{8}$

$= 1\frac{1}{8}$

Answer $1\frac{1}{8}$

12

Turn over ▶

0 5

Do not write outside the box

Section B

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

8 Running

Israa has started running to get fit.

8 (a) One day, Israa ran and walked for 55 minutes in the ratio

minutes running : minutes walking = 7 : 4

The table shows information about calories.

	Calories burned per minute
Running	16.2
Walking	5.8

Work out the total number of calories Israa burned in the 55 minutes.

[5 marks]

$55 \div (7+4) = 55 \div 11$

$= 5$

minutes running $7 \times 5 = 35$

walking $4 \times 5 = 20$

cal burned running $35 \times 16.2 = 567$

walking $20 \times 5.8 = 116$

Total calories burned $567 + 116 = 683$

Answer 683 calories

Do not write outside the box

8 (b) Israa wants to buy new running shoes.

The price of the shoes is reduced in a sale.

0.3

By how much, in pounds, is the price reduced?

[4 marks]

1 − 0.3 = 0.7

84 ÷ 0.7 = 120 (original price)

120 − 84 = 36

Answer £ 36

Question 8 continues on the next page

Do not write outside the box

8 (c) 180 runners take part in a race.

Each runner completes either 3 km or 5 km

The two-way table shows information about the runners.

	Child	Adult	Total
3 km	46	24	70
5 km	13	97	110
Total	59	121	180

A runner is chosen at random.

Israa says,

"The probability that the runner is an adult in the 5 km race is **less than** 0.55"

Is she correct?

You **must** show your working.

[4 marks]

180 − 59 = 121 total adults

180 − 70 = 110 total doing 5km

110 − 13 = 97 adults doing 5km

shown in table

$\frac{97}{180} = 0.53888...$

0.538... < 0.55 so she is correct.

13

Do not write outside the box

9 Buying a house

Jack is renting a flat while he saves to buy a house.

9 (a) Jack rents a flat in town.

The table shows information about the rent of 20 other flats in the same town.

Rent per month (£)	Midpoint		Frequency		midpoint × frequency
Over 500 up to 550	525	×	5	=	2625
Over 550 up to 600	575	×	6	=	3450
Over 600 up to 650	625	×	7	=	4375
Over 650 up to 700	675	×	2	=	1350
			Total = 20		11800

Jack pays rent of £637 per month.

How much **more** than the estimated mean of these 20 flats does Jack pay per month?

[5 marks]

525 × 5 = 2625

575 × 6 = 3450

625 × 7 = 4375

675 × 2 = 1350

2625 + 3450 + 4375 + 1350 = 11800

11800 ÷ 20 = 590 (estimated mean)

637 − 590 = 47

Answer £ 47

Question 9 continues on the next page

Do not write outside the box

9 (b) Jack plans to save a total of £18 000

He

has already saved £13 200

will save the rest from his monthly salary of £1600

will save the same amount each month for 24 months.

What **percentage** of his monthly pay does he need to save?

[4 marks]

18 000 − 13 200 = 4800 left to save

4800 ÷ 24 = 200 to save each month

$\frac{200}{1600} \times 100 = 12.5$

Answer 12.5 %

Do not write outside the box

9 (c) Jack takes a second job.

He works each Saturday

from 9 am to 12 noon

and

from 1 pm to 5 pm

He earns £13.50 per hour.

$\frac{1}{5}$ of his pay is deducted for income tax.

How much does Jack earn each Saturday after income tax has been deducted?

[5 marks]

7 hours each Saturday

7 x 13.5 = 94.5

$\frac{1}{5}$ x 94.5 = 18.9

94.5 − 18.9 = 75.6

Answer £ 75.60

14

Do not write outside the box

10 **Goats**

Kira keeps goats.

10 (a) Kira needs a fenced area in her field for some of her goats.

The fenced area will be

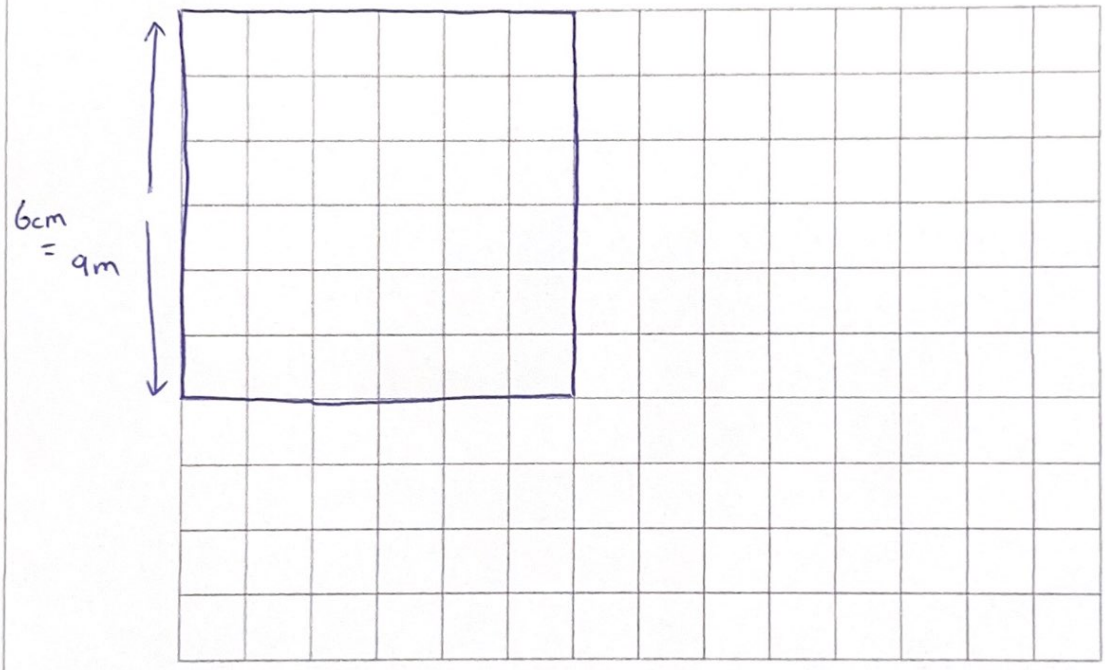
a **square** that covers 81 m^2 $\sqrt{81} = 9$

in the north west corner of the field.

The centimetre square grid shows a scale drawing of Kira's field.

N

Scale: 2 centimetres represents 3 metres



Draw the plan of the fenced area.

[4 marks]

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10 (b) Kira has 48 goats that produce milk.

On average, each goat produces 3.21 litres of milk per day.

Using **approximations**,

estimate how many litres of milk, in total, the goats produce each month.

You **must** show your working.

[3 marks]

$48 \approx 50$ on average 30 days in month

$3.21 \approx 3$

$50 \times 3 \times 30 = 4500$

Answer 4500 litres

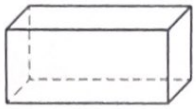
Question 10 continues on the next page

10 (c) Kira uses some of the milk from her goats to make soap.

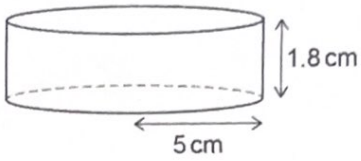
The soap is made into two different solids.

To package the soaps, Kira needs to work out the surface areas.

Soap **A**



Soap **B**

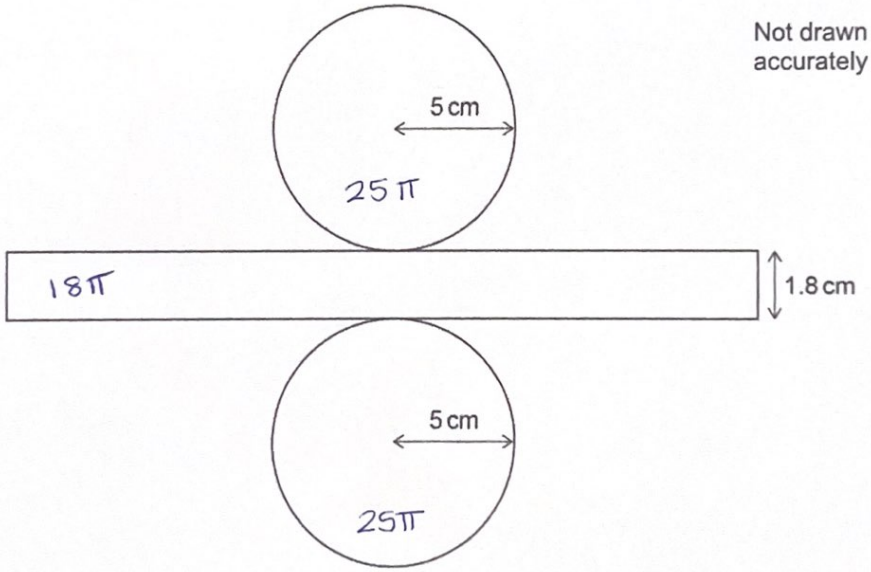


Soap A is a cuboid with a surface area of 153 cm^2

Soap B is a cylinder with a radius of 5 cm and a height of 1.8 cm

Here is a sketch of the net of the cylinder.

Not drawn accurately



Do not write outside the box

Kira says,

"The surface area of soap A is **less than** $\frac{3}{4}$ of the surface area of soap B."

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

[6 marks]

Area of circle $\pi r^2 = \pi \times 5 \times 5$

$= 25\pi$

2 circles $25\pi \times 2 = 50\pi$

Length of rectangle = diameter of circle

$= \pi d = \pi \times 5 \times 2$

$= 10\pi$

Area of rectangle $= 10\pi \times 1.8$

$= 18\pi$

Total surface area $= 50\pi + 18\pi$

$= 68\pi$

$= 213.6\ cm^2$

13

Turn over for the next question

$\frac{3}{4} \times 213.6 = 160.2\ cm^2 > 153\ cm^2$

so yes she is correct

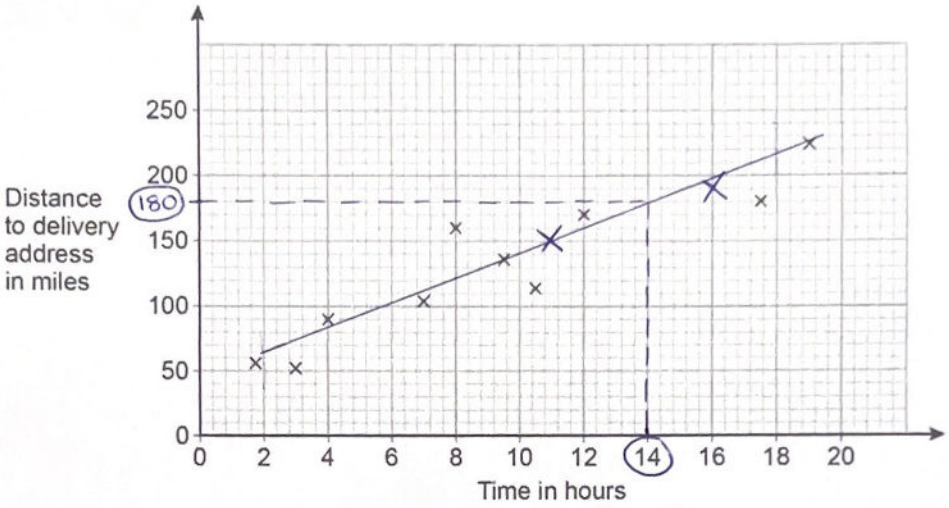
Do not write outside the box

11 **Parcels**

Emil owns a company that delivers parcels.

11 (a) Emil records the delivery distance and the time taken for 12 parcels to be delivered.

The scatter diagram shows information for 10 of these parcels.



The table shows the data for the other two parcels.

Time (hours)	Delivery distance (miles)
11	150
16	190

Plot the two extra points and then use the scatter diagram to estimate the delivery distance of a parcel that takes 14 hours to deliver. see graph

You **must** show your working, which should be on the diagram.

State the units of your answer.

[5 marks]

Answer 180 miles

Do not write outside the box

11 (b) Emil uses this formula to calculate the delivery cost for a parcel.

> Cost in pounds = 1.5 × weight in kilograms + 0.04 × delivery distance in miles

A parcel

weighs 4.2 kg

and

has a delivery distance of 85 miles.

Emil says,

"The cost will be **less than** £10"

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

[3 marks]

C = (1.5 × 4.2) + (0.04 × 85)

= 6.3 + 3.4

= 9.7 £9.70 < £10 so yes he is correct.

8

END OF QUESTIONS