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

Time allowed: 1 hour 30 minutes

Materials

For this paper you must have:

- a calculator
- mathematical instruments.

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.
- If your calculator does not have a π button, take the value of π to be 3.142

Advice

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

For Examiner's Use	
Question	Mark
1–5	
6	
7	
8	
9	
TOTAL	

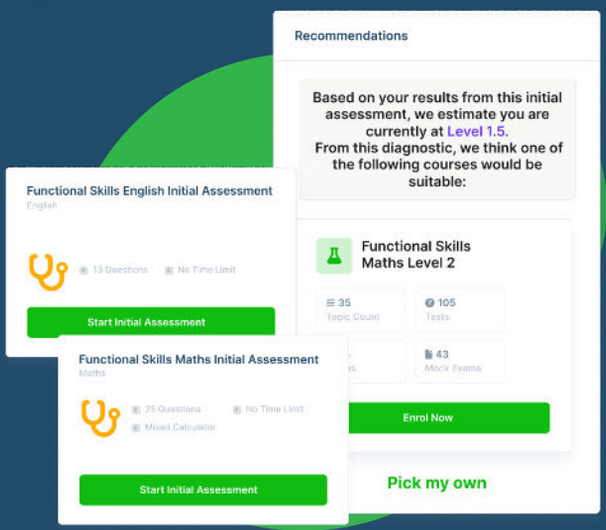
IB/G/Jun22/E9

8362/2

QAN 603/4258/4

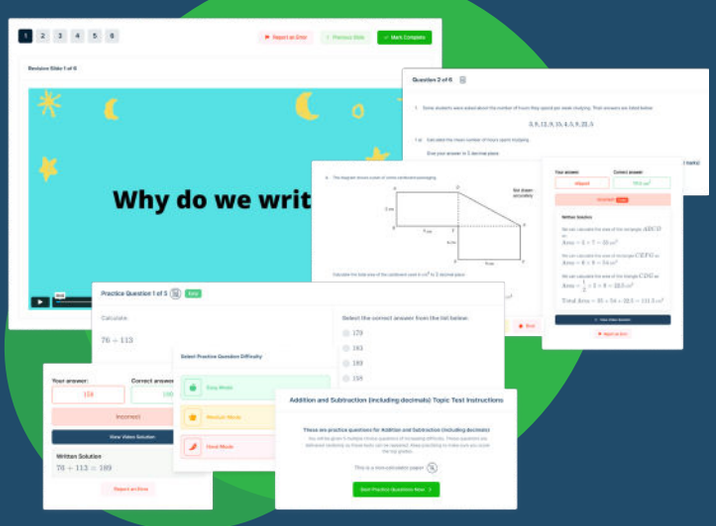
PASS FUNCTIONAL SKILLS

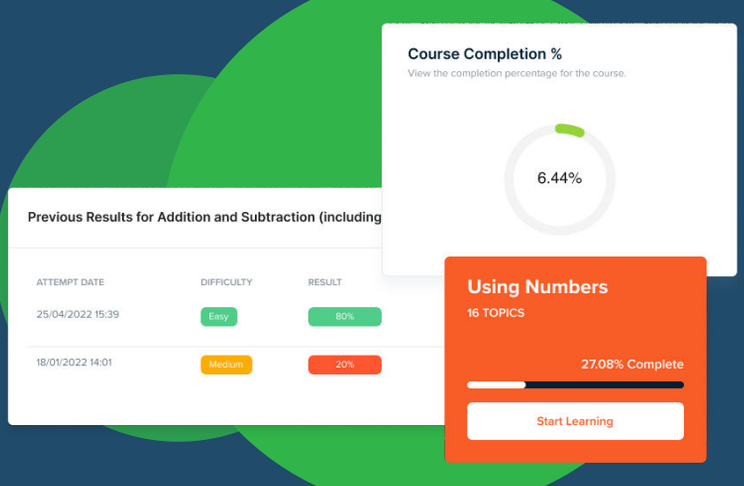
FUNCTIONAL SKILLS ONLINE COURSES



- 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

Do not write outside the box

Section A

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

1 Here are four numbers.

11 11 13 17

Work out the median.

Circle your answer.

[1 mark]

6 11 12 13

2 Write these numbers in order, starting with the **smallest**.

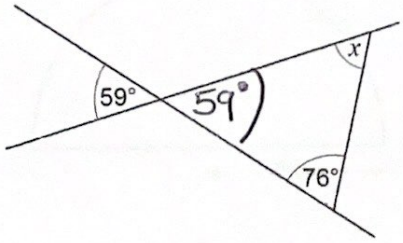
[2 marks]

−16 4 −2 −20 7 −1

Answer −20 , −16 , −2 , −1 , 4 , 7

Do not write outside the box

3 Here is a diagram made of three straight lines.



Not drawn accurately

Work out the size of angle x.

[3 marks]

Opposite angles are equal. Angles in a triangle add up to 180°.

$x + 59 + 76 = 180$

$x + 135 = 180$

$x = 180 - 135$

$x = 45°$

$x =$ 45 °

4 Work out the percentage increase from 250 to 330

[3 marks]

$250 \times \frac{x\%}{100} = 330.$

$\frac{x\%}{100} = \frac{330}{250} = 1.32.$

$x\% = 132\%$

32% increase.

Answer 32 %

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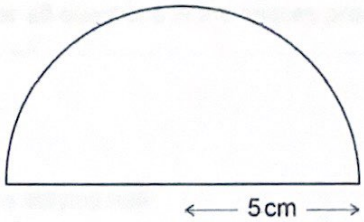
5 The radius of a semicircle is 5 cm



Not drawn accurately

Work out the **perimeter** of the semicircle.

[3 marks]

Circumference of a circle = πd.

Arc of a semicircle = $\frac{1}{2}\pi d$.

$d = 10$.

Arc = $\frac{1}{2} \times 10 \times \pi = 5\pi$.

Perimeter = $5\pi + 10$

Answer $5\pi + 10$ cm

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Do not write outside the box

Section B

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

6 **Holiday**

Ruth is on holiday.

6 (a) The hotel where Ruth is staying has

a total of 720 rooms

four different types of room.

The table shows information about the rooms.

Type of room	Fraction of total rooms
Single	$\frac{11}{40}$
Double	$\frac{7}{16}$
Family	
Luxury	$\frac{1}{5}$

Show that **more than** 8% of the rooms are Family rooms.

[3 marks]

Single: $\frac{11}{40} \times 720 = 198$.

Double: $\frac{7}{16} \times 720 = 315$.

Luxury: $\frac{1}{5} \times 720 = 144$.

Family: $720 - 198 - 144 - 315 = 63$

% family $= \left(\frac{63}{720}\right) \times 100 = 8.75\%$

which is more than 8%.

Do not write outside the box

6 (b) During the holiday each guest visits either a castle, a zoo or a museum.

The probability that a guest, chosen at random,

visits the castle is 0.55

visits the zoo is **twice** the probability that they visit the museum.

Two guests are chosen at random.

Work out the probability that **both** guests visit the museum.

[4 marks]

Probability(Visit zoo) = $2x$

Probability(Visit musem) = x.

$2x + x + 0.55 = 1$.

$3x = 1 - 0.55 = 0.45$.

$x = 0.15$.

Probability 2 random guests visit the museum =

$0.15 \times 0.15 = 0.0225$.

Answer 0.0225

Do not write outside the box

6 (c) Ruth saves £3000 to pay for another holiday in 4 years' time.

She sees adverts for two banks.

Bank A	Bank B
2.1% **compound** interest per year	1.6% **simple** interest per year

Ruth says,

> "The total interest for 4 years will be at least £65 **greater** if I invest the £3000 in Bank A."

Show that she is correct.

[5 marks]

Bank A: $3000 \times 1.021^4 = 3260.049...$

$= £3260.05$.

Bank B: $3000 \times 0.016 = 48$.

$3000 * 48 \times 4 = £3192$.

$3260.05 - 3192 = £68.05$

Yes, she is correct.

12

Turn over for the next question

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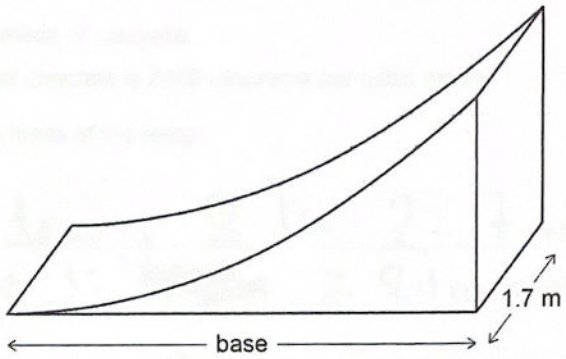
7 **Skateboarding**

Jess is organising a skateboarding competition.

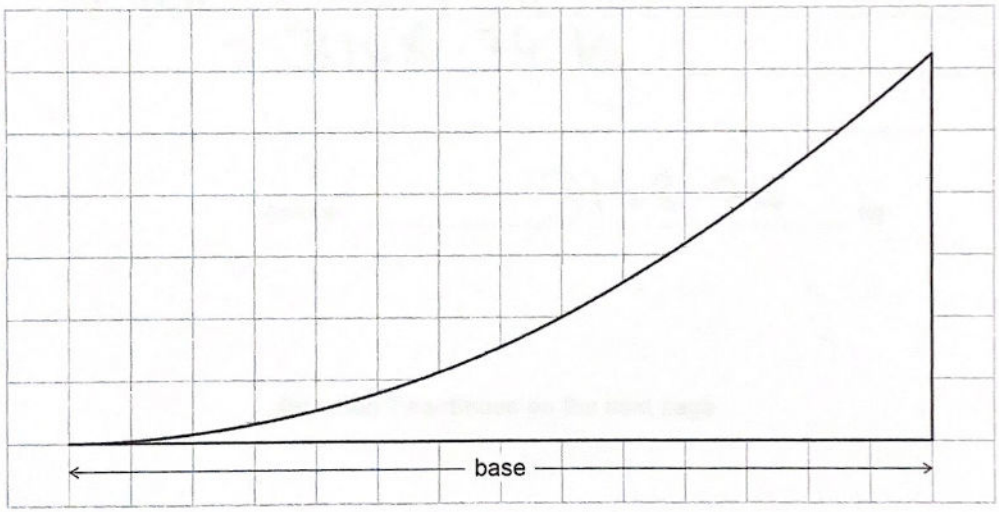
7 (a) Here is a diagram of a skateboarding ramp.



Here is a scale drawing of the front elevation of the skateboarding ramp.

It is drawn on centimetre square paper.

Scale: 2 centimetres represents 0.3 metres



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Here is the formula to calculate the volume of the ramp.

Volume = (length of base)^3 × 1.7 ÷ 12

The ramp is made of concrete.

The density of concrete is 2400 kilograms per cubic metre.

Work out the mass of the ramp.

[6 marks]

Scale drawing: 14 ÷ 2 = 7 lots of 2 cm.

7 × 0.3 = 2.1 m = length of base.

Volume: $2.1^3 \times 1.7 \div 12$

$= 1.311975 m^3$.

mass: 2400×1.311975

$= 3148.74$ kg.

Answer 3148.74 kg

Question 7 continues on the next page

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7 (b) 160 skateboarders enter the competition.

The skateboarders are adults or children.

Each skateboarder does the Yogi run **or** the Zulu run.

40% of the skateboarders do the Zulu run.

18 of the children do the Yogi run.

20 **more** adults do the Yogi run than the Zulu run.

One skateboarder is chosen at random.

Work out the probability that the skateboarder is a **child**.

You may use the table to help you.

[6 marks]

	Yogi	Zulu	Total
Child	18	6	24
Adult	78	58	136
Total	96	64.	160

0.4×160 = 64 do Zulu.
160-64 = 96 do Yogi.
96-18 = 78 adults do Yogi.
78-20 = 58 adults do Zulu.
78+58 = 136 adults
160-136 = 24 children.
24-18 = 6 children do Zulu.

24/160 = 0.15.

Answer 0.15

12

Do not write outside the box

8 **Walking Marathon**

Janik is walking a marathon to raise money for charity.

8 (a) The marathon is 26.2 miles long.

Janik

starts at 9.30 am

walks at a constant speed of 4 miles per hour

takes 3 breaks that are 15 minutes each.

Will Janik finish the marathon before 5 pm?

You **must** show your working.

[4 marks]

$26.2 \div 4 = 6.55$ hours of walking.

3 15minute breaks $= \frac{15 \times 3}{60} = 0.75$ hours.

Total time $= 6.55 + 0.75 = 7.3$ hours.

17:00 − 9:30 = 7 hours and 30 minutes.

$= 7.5$ hours > 7.3 hours.

Yes, Janik will finish before 5pm.

Question 8 continues on the next page

Do not write outside the box

8 (b) This year 30 000 people walked the marathon.

The table shows the time it took the walkers to complete the marathon.

Time, t (hours)	Frequency	Mid-point	Mid × f
$5 < t \leq 7$	5001	6	30006
$7 < t \leq 9$	14516	8	116128
$9 < t \leq 11$	8465	10	84650
$11 < t \leq 13$	2018	12	24216
	Total = 30 000		255000

Last year, the mean time was 9.2 hours.

The marathon organiser says,

"This year, the mean time was lower by **more than** half an hour."

Is the organiser correct?

You **must** show your working.

[5 marks]

$\frac{255000}{30\,000} = 8.5$ hours.

9.2 − 8.5 = 0.7 hours lower, which is more than half an hour.

The organiser is correct.

Do not write outside the box

8 (c) The 30 000 people in the marathon were in the ratio

adults : children = 11 : 1

Each adult paid an entry fee of £38

Children walked for free.

The charity's target was to raise £1 million from entry fees.

Did the charity meet its target?

You **must** show your working.

[3 marks]

11 + 1 = 12.

$30\,000 \times \frac{11}{12} = 27\,500$

Amount raised: $38 \times 27\,500$

$= £1,045,000$

Yes, they surpassed their target.

12

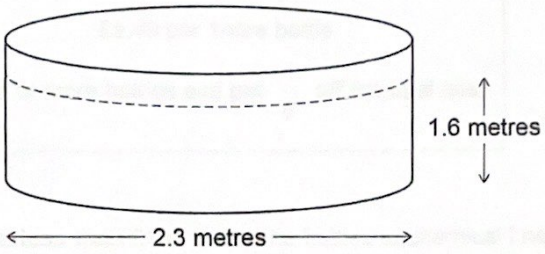
Turn over for the next question

Do not write outside the box

9 **Garden Pool**

Chen has a pool in his garden.

9 (a) Chen's pool is cylindrical.



The diameter of the pool is 2.3 metres.

Chen wants the depth of the water to be 1.6 metres.

The hosepipe fills the pool at a rate of 50 litres every 4 minutes.

1000 litres = 1 cubic metre

How many minutes will it take for the pool to go from empty to the required depth?

[6 marks]

Volume of water $= \pi \times \left(\frac{2.3}{2}\right)^2 \times 1.6$

$= 6.6476\ldots m^3$.

$= 6647.61$ litres (2 decimal places)

Time taken $= \frac{6647.61 \times 4}{50}$

$= 531.81$ minutes.

Answer 531.8 minutes

Do not write outside the box

9 (b) Chen needs to buy 3 gallons of cleaning chemical to put in the pool.

He sees this advert online.

> **Pool cleaning chemical**
>
> £8.49 per 1-litre bottle
>
> Buy 4 or more bottles and get $\frac{1}{6}$ off the total cost

Chen says,

"It will cost **less than** £100 to buy the bottles of chemical I need."

Is Chen correct?

You **must** show your working.

1 gallon = 4.546 litres

[6 marks]

3 × 4.546 = 13.638 Litres.

So she needs 14 1-Litre bottles.

14 × 8.49 = £118.86.

1/6 off is 5/6.

118.86 × 5/6 = £99.05.

Yes, it will cost less than £100.

12

END OF QUESTIONS

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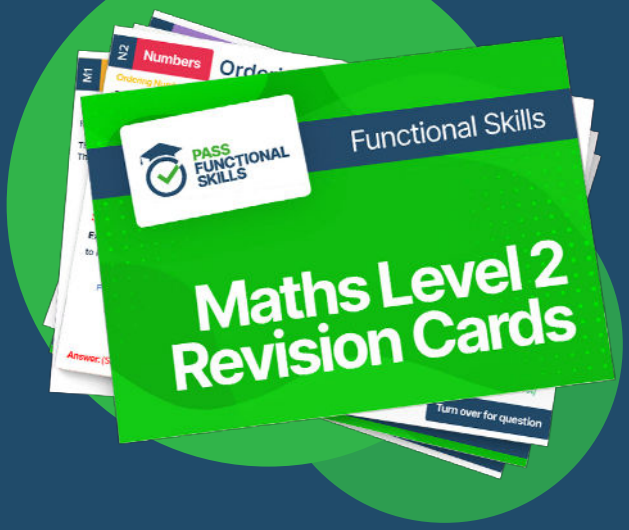

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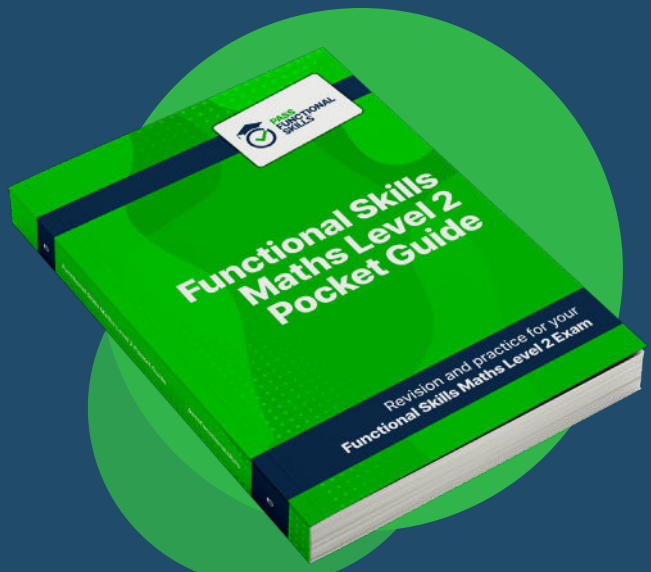
Level 2 Revision Cards

Functional Skills English Level 2
Practice Papers & Revision Cards



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