AQA

Functional Skills Level 2 MATHEMATICS

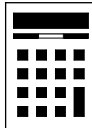## Paper 2 Calculator

Monday 13 January 2020   Afternoon   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.

For Examiner's Use	
Question	Mark
1–7	
8	
9	
10	
11	
12	
TOTAL	

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.

8362/2
QAN 603/4258/4

PASS FUNCTIONAL SKILLS

FUNCTIONAL SKILLS ONLINE COURSES

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

Functional Skills English Initial Assessment
English

🔲 13 Questions   ⊘ No Time Limit

Start Initial Assessment

Functional Skills Maths Initial Assessment
Maths

🔲 25 Questions   ⊘ No Time Limit
🔲 Mixed Calculator

Start Initial Assessment

- ✅ 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

Course Completion %
View the completion percentage for the course.

6.44%

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%

Using Numbers
16 TOPICS

27.08% Complete

Start Learning

- ✅ 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
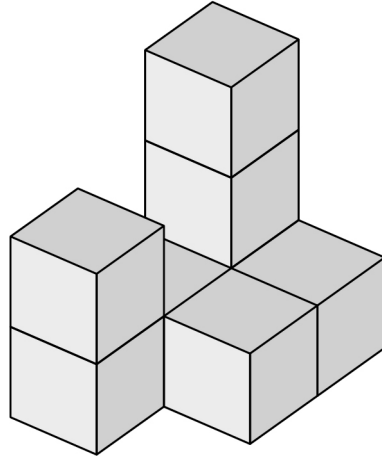- ✅ View historical attempts to analyse your progress over time

Or visit
passfunctionalskills.co.uk

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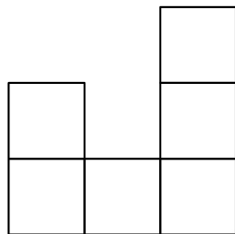
Answer **all** questions in the spaces provided.

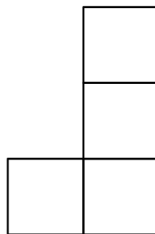**1** The diagram shows a 3-D shape.

Which is the plan view of the shape?
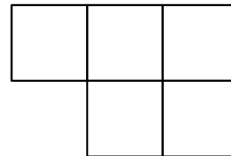Circle the correct letter.

[1 mark]

A   B   C   D
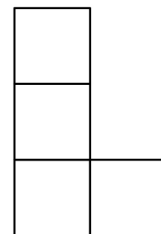
2   Write down the coordinates of the point marked ✕.
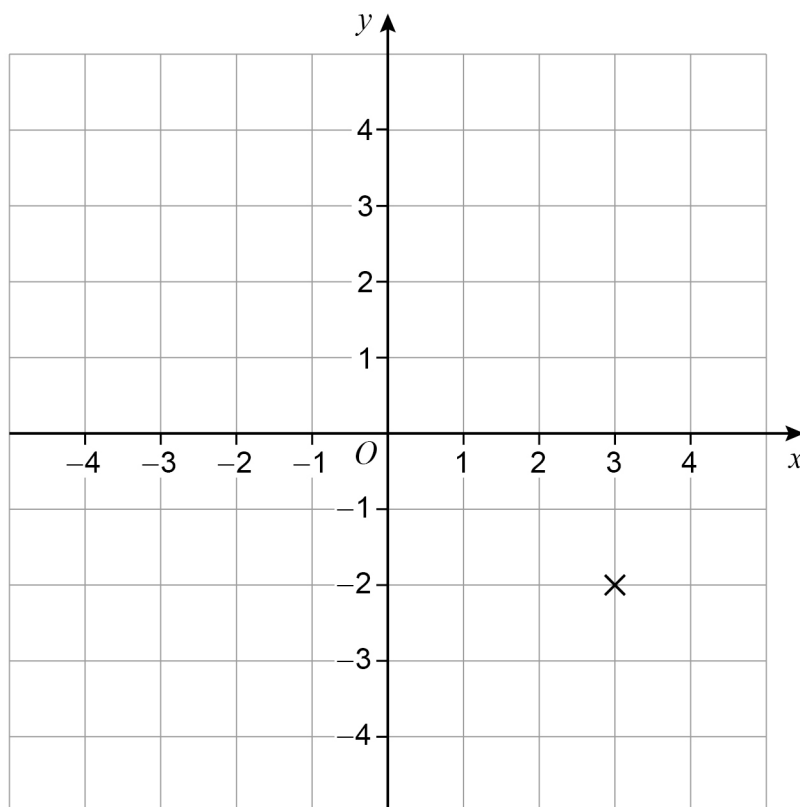
[1 mark]

(x, y)

Answer (__3__ , __−2__)

3   Increase 1670 by 27%

[2 marks]

$1670 \times 1.27 = 2120.9$

Answer __2120.9__

Turn over ▶

4   The graph can be used to convert between pounds and kilograms.
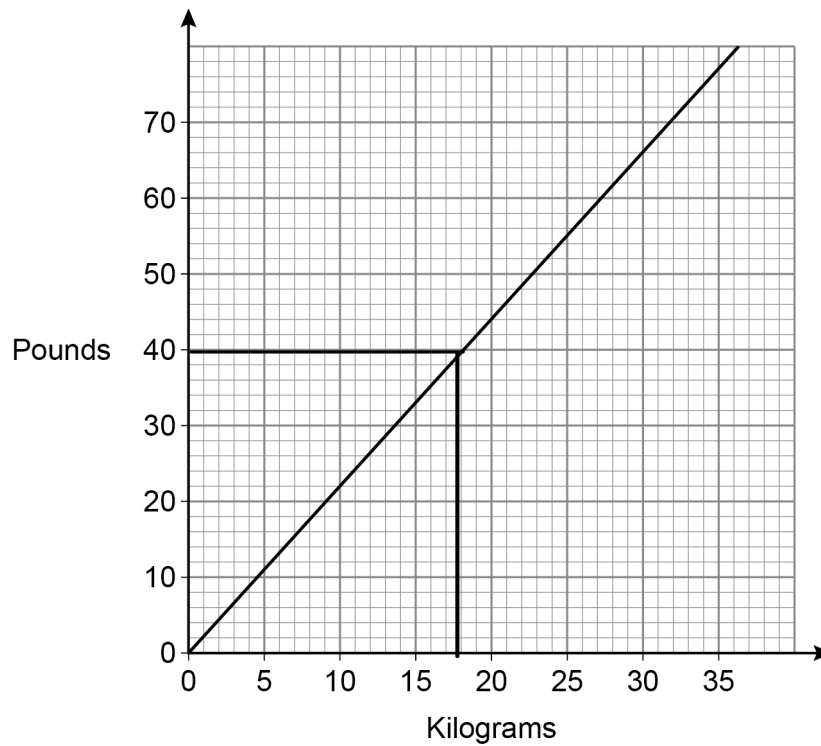
Pounds

Kilograms

Use the graph to convert 40 pounds to kilograms.

[2 marks]

Answer _____18_____ kilograms

5   Calculate $1\frac{3}{4} + 2\frac{4}{5}$

[1 mark]

$$\frac{7}{3} + \frac{14}{5} = 4\frac{11}{20}$$

Answer $4\frac{11}{20}$

6   Complete the table to show equivalent fractions, decimals and percentages.
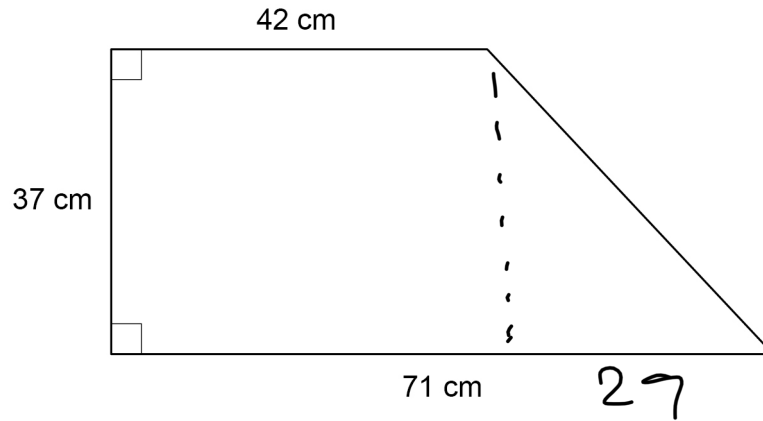
[2 marks]

Fraction	Decimal	Percentage
$\frac{3}{8}$	0.375	37.5%
$\frac{15}{100}$	0.15	15%

Turn over for the next question

Turn over ▶

7   A shape is made from a rectangle and a triangle.

42 cm

Not drawn
accurately

37 cm

71 cm   29

Work out the area of the shape.

[3 marks]

$$71 - 42 = 29$$

$$42 \times 37 = 1554$$

$$\frac{1}{2} \times 29 \times 37 = 536.5$$

$$1554 + 536.5 = 2090.5$$

Answer   2090.5   cm²

12

Section B

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

8   **Fashion blogger**

Alex is a fashion blogger.

Companies pay her to promote their goods.

8 (a)   Alex writes 30 posts promoting Company A.

The table shows the number of views of each post.

Number of views, x	Frequency	mid point	mid × Fq
$0 \leqslant x < 30\,000$	5	15,000	75,000
$30\,000 \leqslant x < 60\,000$	9	45,000	405,000
$60\,000 \leqslant x < 90\,000$	12	75,000	900,000
$90\,000 \leqslant x < 120\,000$	4	105,000	420,000
	Total = 30		1,800,000

Alex also writes 23 posts promoting Company B.

The total number of views of these posts is 1 223 600

Which company receives the **higher** average number of views, A or B?

You **must** show your working.

[4 marks]

1 223,600 ÷ 23 = 53,200

1,800,000 ÷ 30 = 60,000

Company A

Turn over ▶

Some of the posts were about clothing and the rest were about shoes.

The table shows the number of each.

	Company A	Company B
Clothing	21	13
Shoes	9	10

total
34
19
——
53

One of the posts is chosen at random.

8 (b) Work out the probability that it is about clothing.

[1 mark]

Answer   34/53

8 (c) Work out the probability that it is from Company A **and** is about shoes.

[1 mark]

Answer   9/53

8 (d) In a year, Alex wrote 1460 posts promoting companies.

She was paid £75 for each post that had at least 65 000 views.

In total, she was paid £36 000

What percentage of her posts had at least 65 000 views?

[3 marks]

$36,000 \div 75 = 480$

$\dfrac{480}{1460} \times 100 = 32.9$

Answer _____ 32.9 _____ %
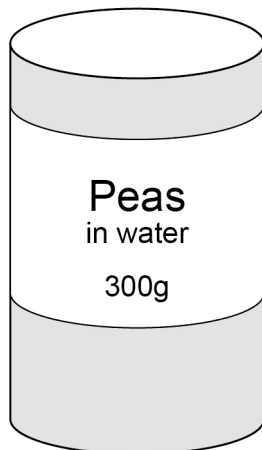
9

Turn over for the next question

9   Tinned food

A company makes tinned food.

9 (a)   A tin is filled with peas and water.

Peas
in water
300g

The contents of the tin have a total mass of 300 grams.

mass of peas : mass of water = 3 : 2

240 of these tins are packed into a box.

Work out the total mass of peas in the box.
Give your answer in kilograms.

[5 marks]
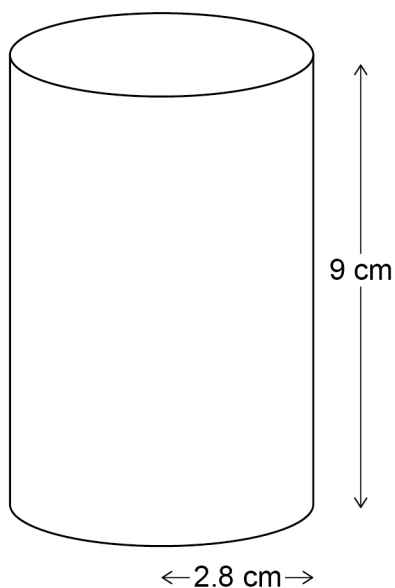
3 + 2 = 5   300 ÷ 5 = 60

60 × 3 = 180g of peas per tin

180g = 0.18 kg

0.18 × 240 = 43.2

Answer _____43.2_____ kilograms

9 (b)   A tin for carrots is a cylinder with radius 2.8 cm and height 9 cm

9 cm

←2.8 cm→

When filled, one sixth of the volume of the tin of carrots is water.

The company uses 425 litres of water each day in tins of carrots.

1 litre = 1000 cm^3

How many tins of carrots does the company make each day?

[5 marks]

$2.8^2 \times \pi = 24.6 \text{ cm}^2$

$24.6 \times 9 = 221.7 \text{ cm}^3$

$\frac{1}{6} \times 221.7 = 36.9 \text{ cm}^3$ water

$425 L = 425,000 \text{ cm}^3$

$425,000 \div 36.9 = 11504$

Answer _____ 11504 _____

10

Turn over ▶

10   **University student**

Marco is about to start university.

The table shows his total expected income for the **year**.

	Amount (£)
Student loan	8700
Part-time job	4800

Marco budgets for the following expenses each **month** for 12 months.

	Amount per month (£)
Accommodation	589.00
Living expenses	186.00
Entertainment	65.00
Travel	87.50

10 (a)   Marco will save any income that he does not spend.

How much does he expect to save in the **year**?

[4 marks]

$$8700 + 4800 = 13,500$$
$$589 + 186 + 65 + 87.50$$
$$= 927.50$$
$$927.50 \times 12 = 11130$$

$$13500 - 11130 = 2370$$

Answer £ _____2370_____

10 (b) On Marco's 14th birthday, his parents put £2000 into a bank account for him.

The account pays compound interest at a rate of 1.5% per annum.

Marco can access the account on his 21st birthday.

How much will be in the account on his 21st birthday?

[3 marks]

$21 - 14 = 7$

$1.5\% = 0.015$

$1.015^7 \times 2000 = 2219.69$

Answer £ ____2219.69____

7

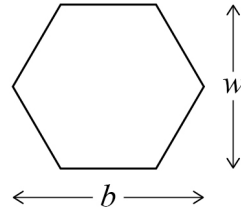**Turn over for the next question**

Turn over ▶

11 **Jewellery**

11 (a) Mo makes and sells jewellery.

He makes pendants in the shape of hexagons.

The hexagons are made of glass and have wire around the perimeter.

Not drawn
accurately

Here is a formula for the perimeter, P, of the hexagon.

$$P = 6 \times \sqrt{\left(\frac{b}{4}\right)^2 + \left(\frac{w}{2}\right)^2}$$

b is the length of the pendant

w is the width of the pendant

Mo makes pendants with length 6.4 cm and width 5.5 cm

He buys the wire in reels with 4 metres of wire on each reel.

How many pendants can Mo make using one reel of wire?
You **must** show your working.

[5 marks]

$$\left(\frac{6.4}{4}\right)^2 + \left(\frac{5.5}{2}\right)^2 = 1.6^2 + 2.75^2$$
$$= 10.1225$$
$$\sqrt{10.1225} = 3.18$$
$$6 \times 3.18 = 19.09$$
$$4m = 400\ cm$$
$$400 \div 19.09 = 20.95$$

Answer   20

11 (b) Mo makes some pendants.

The glass in each pendant is red, blue or yellow.

$\frac{2}{11}$ of the pendants are red

blue pendants and yellow pendants are in the ratio 2 : 1

What fraction of the pendants are blue?

[4 marks]

$1 - \frac{2}{11} = \frac{9}{11}$

$2 + 1 = 3$ $\frac{9}{11} \div 3 = \frac{3}{11}$

yellow

$\frac{3}{11} \times 2 = \frac{6}{11}$ blue

Answer $\frac{6}{11}$

9

Turn over for the next question

Turn over ▶

12   **Football match**

Steph supports Leicester City Football Club.

She and three friends are going to watch the team play at West Ham United.

12 (a)   The table shows information about the three parts of their journey.

Drive 108 miles	Average speed 48 miles per hour
Train	Maximum 34 minutes
Walk to stadium	Maximum 25 minutes

What is the latest time they can leave to be sure of getting to the stadium by 2.30 pm?
You **must** show your working.

[4 marks]

$$S = d/t \qquad t = d/s$$

Drive:

$108/48 = 2.25$ hours
$= 135$ mins

$135 + 34 + 25 = 194$ mins
$= 3$ hours 14 mins

2:30pm $-$ 3 hours 14 mins
$= 11:16$am

Answer   11:16am

12 (b) Steph works out the cost of her trip, including the return journey.

She will use her car to drive 108 miles **each way**.

She and her 3 friends will share the cost of fuel equally.

Her car travels 12.5 miles per litre of fuel.

Fuel costs 128.8p per litre.

Steph will also pay

£3 for a return train ticket

£30 for a match ticket

£8 for food.

Work out the total amount Steph will pay for her trip.

[6 marks]

$108 \times 2 = 216$

$216 \div 12.5 = 17.28$ litres

$17.28 \times 128.8 = 2225.664$ p

$2225.664 \div 4$ people $= 556.416$ p

556.416 p $\approx £5.56$

$5.56 + 3 + 30 + 8 = 46.56$

Answer £ 46.56

Question 12 continues on the next page

Turn over ▶

12 (c)   Steph looks at all the match results Leicester City have had at West Ham United.

Leicester win	West Ham win	Draw
12	32	15

Steph says,

"Based on these results, the probability of a Leicester win is more than 20%"

Is she correct?

You **must** show your working.

[3 marks]

$12 + 32 + 15 = 59$

$12/59 \times 100 = 20.3\%$

Yes, $20.3\% > 20\%$

13

END OF QUESTIONS

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ANSWER IN THE SPACES PROVIDED

Question number	Additional page, if required. Write the question numbers in the left-hand margin.

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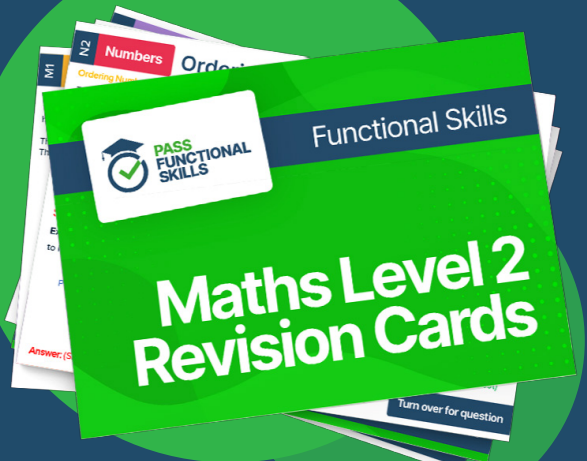**DO NOT WRITE ON THIS PAGE**
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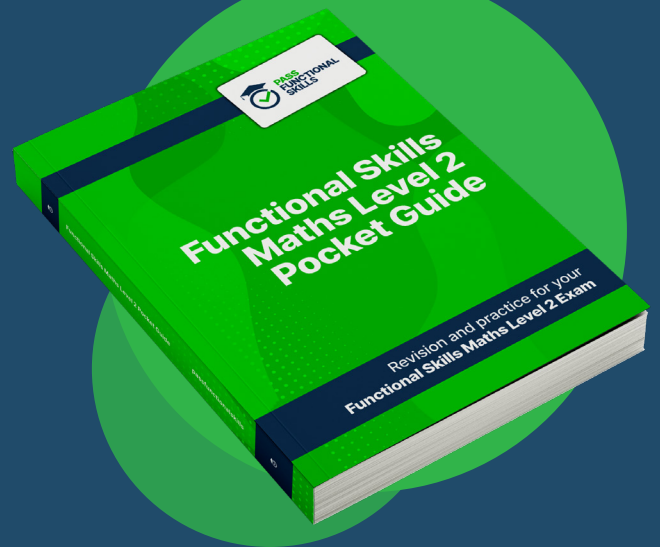**Functional Skills Maths
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