

Please check the examination details below before entering your candidate information

Candidate surname

Other names

**Pearson Edexcel
Functional Skills**

Centre Number

Candidate Number

Set 8

Time: 1 hour 30 minutes

Paper Reference **PMAT2/C08**

Mathematics

Level 2

Section B (Calculator)



You must have:

Pen, calculator, HB pencil, eraser, ruler graduated in cm and mm, protractor, pair of compasses. Tracing paper may be used.

Total Marks

My signature confirms that I will not discuss the content of the test with anyone.

Signature: _____

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Sign the declaration.
- Answer **all** questions.
- Write your final answers in the boxes provided.
- Answer the questions in the spaces provided – *there may be more space than you need.*
- You **must** show clearly how you get your answers in the spaces provided. Marks will be awarded for your working out.
- Check your working and answers at each stage.
- Diagrams are **not** accurately drawn, unless otherwise indicated.
- **Calculators may be used.**
- If your calculator does not have a π button take the value of π to be 3.14

Information

- The total mark for this section is 48.
- The total mark for this paper is 64.
- The marks for **each** question are shown in brackets
– *use this as a guide as to how much time to spend on each question.*
- This sign shows where marks will be awarded for showing your checks.

Advice

- Read each question carefully before you start to answer it.
- Check your answers if you have time at the end.

Turn over ►

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.CG Maths.
Worked Solutions


Pearson

Please note that these worked solutions have neither been provided nor approved by Pearson Education and may not necessarily constitute the only possible solutions. Please refer to the original mark schemes for full guidance.

Any writing in blue should be written in the exam.

Anything written in green in a rectangle doesn't have to be written in the exam.

If you find any mistakes or have any requests or suggestions, please send an email to curtis@cgmaths.co.uk

SECTION B

Answer ALL questions. Write your answers in the spaces provided.

- 1** Mandy spins a fair spinner twice.

The colours on the spinner are red, blue, green, orange and pink.
The table shows all the possible outcomes.

		Second spin				
		Red	Blue	Green	Orange	Pink
First spin	Red	R, R	R, B	R, G	R, O	R, P
	Blue	B, R	B, B	B, G	B, O	B, P
	Green	G, R	G, B	G, G	G, O	G, P
	Orange	O, R	O, B	O, G	O, O	O, P
	Pink	P, R	P, B	P, G	P, O	P, P

- (a) What is the probability of getting the same colour on both spins?

$$\frac{5}{25}$$

5 out of the 25 possibilities have the same colour on both spins.
The possibilities outlined in red have the same colour on both spins

(1)

- (b) What is the probability of getting at least one blue in the two spins?

$$\frac{9}{25}$$

9 out of the 25 possibilities have at least one blue in the two spins. The possibilities highlighted in green have at least one blue

(2)

(Total for Question 1 is 3 marks)

- 2 Habiba wants to make pastry by mixing butter and flour.
She needs to mix the butter and the flour in the ratio 4 : 9

Habiba wants to make 650 grams of pastry.
She has 425 grams of flour.

Does Habiba have enough flour to make 650 grams of pastry?
Show why you think this.

(3)

$$650 \div 13$$

4 + 9 = 13 parts in total which represent the 650 grams of pastry. So dividing the 650 grams by 13 works out that 1 part of the ratio is worth 50 grams

$$50 \times 9 = 450$$

Multiplying the value of 1 part of the ratio by the 9 parts which represent the flour works out that 450 grams of flour is needed

425 grams is less than the needed 450 grams

No

(Total for Question 2 is 3 marks)

- 3 Habiba also wants to make cupcakes. She has this list of ingredients.

Cupcakes makes 12	
2 cups of flour	1 egg
3 tbsp butter	10.5 fl oz milk
$\frac{3}{4}$ cup sugar	3 apples
pinch of cinnamon	

Habiba wants to make 30 cupcakes.

1 fl oz = 28.413 ml

How much milk does Habiba need to make 30 cupcakes?
Give your answer to the nearest ml.

(4)

$10.5 \div 12$ ← Dividing the 10.5 fl oz milk by 12 works out that 0.875 fl oz milk is needed for 1 cupcake

0.875×30 ← Multiplying the 0.875 fl oz milk needed for 1 cupcake by 30 works out that 26.25 fl oz milk is needed for 30 cupcakes

26.25×28.413 ← Multiplying the 26.25 fl oz milk by 28.413 works out how many ml of milk is needed

745.8... is rounded to the nearest ml → 746 ml

(Total for Question 3 is 4 marks)

Dividing the highest amount by the number of large boxes can help work out a suitable scale. $325 \div 8 = 40.6\dots$ which should be rounded up to 50s to give a suitable scale. $23 \div 8 = 2.8\dots$ which should be rounded up to 4s to give a suitable scale

- 4 Callum is a plumber.
He spends money on eight different adverts.

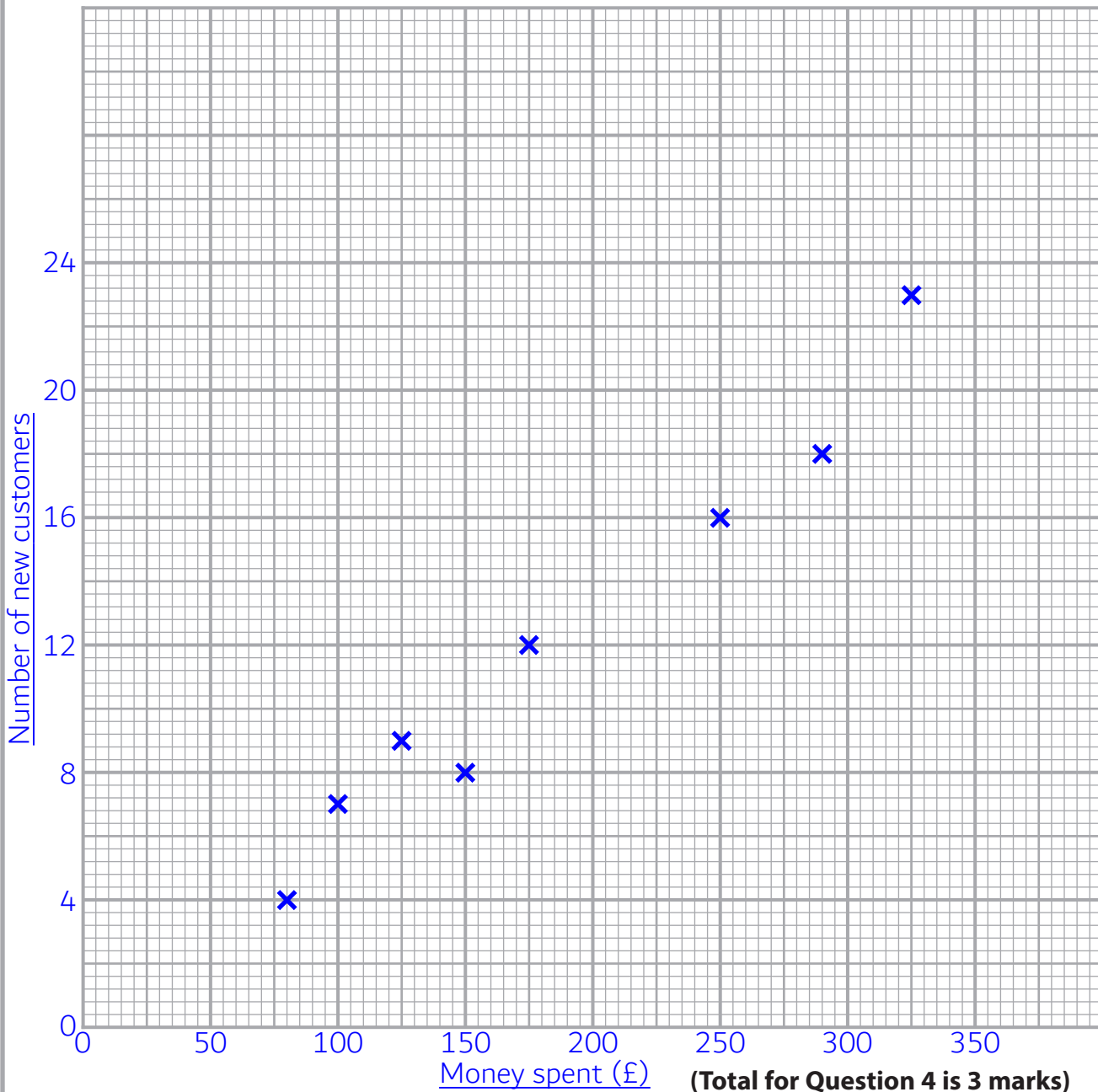
Callum has this information about the money he spent on each advert and the number of new customers from seeing that advert.

Money spent (£)	100	175	80	250	150	325	125	290
Number of new customers	7	12	4	16	8	23	9	18

Callum wants to draw a diagram to see if there is a relationship between the money he spent on each advert and the number of new customers from seeing that advert.

Draw a suitable diagram for Callum.

(3)



5 Misha rows in a team of 8 people.

She wants to compare the mean BMI of the people in the rowing team with the mean BMI of women in the UK.

Misha uses this formula to calculate her BMI.

$$\text{BMI} = \frac{W}{H^2}$$

W is weight (kg)
 H is height (metres)

Misha has a weight of 73.3 kg and a height of 67 inches.

1 inch = 2.54 cm

The table shows some information about the BMIs of the people in the rowing team.

Louise	Katia	Leila	Lisa	Gemma	Mel	Steph	Misha
24.8	27.1	25.7	28.3	26.4	25.2	27.6

The mean BMI of women in the UK is 26.9

Compare the mean BMI of the people in the rowing team with the mean BMI of women in the UK.

(5)

67×2.54 ← Multiplying the 67 inches by 2.54 converts it to 170.18 cm

$170.18 \div 100$ ← There are 100 cm in 1 m so dividing the 170.18 cm by 100 converts it to 1.7018 m

$\frac{73.3}{1.7018^2}$ ← Substituting 73.3 for W and 1.7018 for H in the formula works out that Misha's BMI is 25.3...

$24.8 + 27.1 + 25.7 + 28.3 + 26.4 + 25.2 + 27.6 + 25.3...$ ← Adding all the BMIs of the people in the rowing team works out that their total BMI is 210.4...

$210.4... \div 8 = 26.3...$ ← Dividing the total BMI by the 8 people works out that the mean BMI of the people in the rowing team is 26.3...

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The mean BMI of the people in the rowing team is lower than the mean BMI of women in the UK

26.3... is lower than 26.9

(Total for Question 5 is 5 marks)

6

(a) Write three million, six hundred and seventy five thousand in figures.

(1)

3675000

(b) Write 760 grams as a fraction of 1 kilogram.
Give your answer in its simplest form.

(2)

$\frac{760}{1000}$

There are 1000 grams in 1 kilogram. The units of both measurements needs to be the same to express the fraction

Putting the fraction in the calculator simplifies it

19

25

(Total for Question 6 is 3 marks)

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7 Nyam looks at the screen time report on his phone.

This week his average screen time per day is 28% greater than his average screen time per day last week.

This week Nyam's average screen time per day is 3 hours and 44 minutes.

Work out Nyam's average screen time per day for last week.

(4)

$$3 \times 60$$

There are 60 minutes in an hour so multiplying the 3 hours converts it to 180 minutes

$$180 + 44$$

Adding the 44 minutes to 180 minutes works out that this week his average screen time per day is 224 minutes

$$224 \div 128$$

Adding the 28% to 100% gives 128%. So dividing the 224 minutes by 128 works out that 1% of his average screen time per day last week is 1.75 minutes

$$1.75 \times 100$$

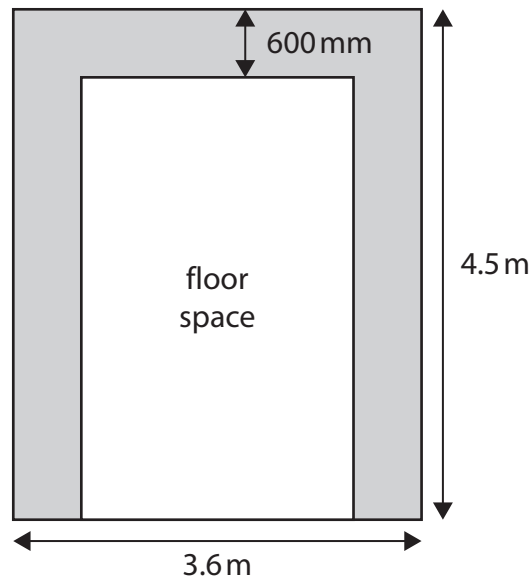
Multiplying the value of 1% by 100 works out 100% of the average screen time per day for last week

175 minutes

(Total for Question 7 is 4 marks)

- 8 Frank wants to fit underfloor heating in his kitchen. The kitchen is in the shape of a rectangle.

He has this sketch.



The shaded space shows the part of the floor covered by cabinet bases. Each cabinet has a depth of 600 mm.

Frank will cover part of the floor space with heating cable.

Frank needs to leave a gap of 100 mm between the base of the cabinets and the part of the floor space he will cover.

He needs to buy a cable pack.

The table shows information about the different sizes of heating cable packs and the maximum floor area each pack can cover.

Cable pack size	Maximum floor area (m ²)	Cost (£)
small	4.2	109.99
medium	6.0	164.99
large	8.4	179.99
extra large	10.6	199.99

Frank wants to spend as little as possible.

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- (a) Work out the cost of the cable pack Frank needs to buy.
You **must** show your working.

(5)

$$600 + 100$$

Adding the 100 mm gap to the 600 mm depth of the cabinet works out that 700 mm is the gap between the walls and the part he needs to cover where the cabinets are

$$700 \div 1000 = 0.7$$

There are 1000 mm in 1 m so dividing the 700 mm by 1000 converts it to 0.7 m

$$4.5 - 0.7 = 3.8$$

Subtracting one lot of the 0.7 m from the length of the kitchen as there is one lot of the cabinet within the length works out that the length of the part he needs to cover is 3.8 m

$$3.6 - 0.7 - 0.7$$

Subtracting two lots of the 0.7 m from the width of the kitchen as there are two lots of the cabinet within the width works out that the width of the part he needs to cover is 2.2 m

$$3.8 \times 2.2 = 8.36$$

Area of rectangle = length \times width. So the area of the part of the floor space he will cover is 8.36 m²

The large pack is the cheapest pack with enough maximum floor area

£ 179.99



- (b) Use a reverse calculation to show a check of your answer.

(1)

$$8.36 \div 2.2 = 3.8$$

$$3.8 + 0.7 = 4.5$$

$$2.2 + 0.7 + 0.7 = 3.6$$

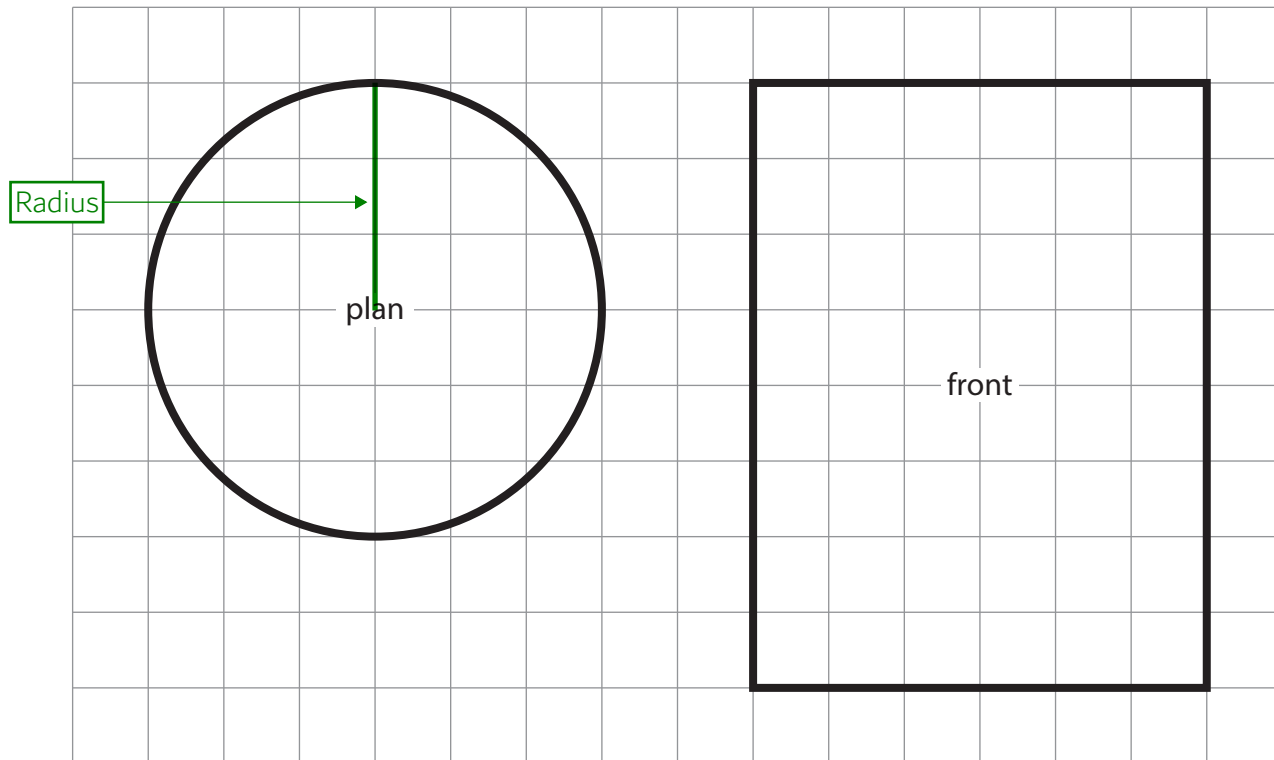
$$0.7 \times 1000$$

$$700 - 100 = 600$$

Going back from the answers to the calculations to the original data

(Total for Question 8 is 6 marks)

- 9 Sammi has designed a sweet tin in the shape of a cylinder. The plan and the front elevation of the tin are shown on the centimetre grid below.



Find the volume of the sweet tin.

$$\pi \times 3^2 \times 8$$

Area of circle = $\pi \times \text{radius}^2$. The radius is 3 cm. Then multiplying the area of the circle by the height of 8 cm gives the volume

(3)

$$72\pi \text{ cm}^3$$

(Total for Question 9 is 3 marks)

10

(a) Write $\frac{15}{7}$ as a mixed number.

(1)

$2\frac{1}{7}$ ← The calculator can format it as a mixed number

Here is a list of numbers.

-3 6 -5 4 4 0

(b) Find the median.

(2)

-5, -3, 0, 4, 4, 6 ← Putting the numbers in order from smallest to largest then underlining from both ends until there are two numbers in the middle

$0 + 4$ ←
 $4 \div 2$ ← Doing the mean of the 0 and 4 which are in the middle to work out what is halfway between them. Adding them together gives a total of 4, which can be divided by 2 (as there are 2 numbers) to give the mean of 2

(Total for Question 10 is 3 marks)

11

(a) Write 28% as a decimal.

(1)

$$28 \div 100 \leftarrow \text{Dividing a percentage by 100 converts it to a decimal}$$

0.28

Andrew pays 38.90 euros for a meal in Spain using his British bank card.

The British bank charges a fee for changing currency.
The fee is 2.75% of the amount he pays for the meal.

£1 = 1.127 euros

(b) Work out the total amount Andrew pays for the meal and the fee.
Give your answer in pounds.

(4)

$$38.90 \div 100 \leftarrow \text{Dividing the 38.90 euros by 100 works out that 1\% of the amount he pays for the meal is 0.389 euros}$$

$$0.389 \times 2.75 \leftarrow \text{Multiplying the value of 1\% by 2.75 works out that 2.75\% of the amount he pays for the meal is 1.06975 euros, which is the fee for changing currency}$$

$$38.90 + 1.06975 \leftarrow \text{Adding the fee for changing currency to the amount he pays for the meal works out that the total amount he pays for the meal and the fee is 39.96975 euros}$$

$$39.96975 \div 1.127 \leftarrow \text{Dividing the total amount he pays for the meal and the fee in euros by 1.127 converts it to pounds}$$

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35.465... pounds is rounded to the nearest penny

£ 35.47

(Total for Question 11 is 5 marks)

12 Bilal works for a supermarket.
His usual pay is £8.70 per hour.

Bilal will work for $7\frac{1}{2}$ hours this Sunday.

The supermarket will pay Bilal time and a half for working on a Sunday.

Bilal thinks the supermarket will pay him more than £100 for working this Sunday.

(a) Is he correct?

Show why you think this.

(3)

$1\frac{1}{2} \times 8.70$ ← Working out that the time and a half pay is £13.05 per hour

$13.05 \times 7\frac{1}{2}$ ← Multiplying the £13.05 per hour by the $7\frac{1}{2}$ hours worked this Sunday works out the amount the supermarket will pay him for working this Sunday

97.88 ← Rounding to the nearest penny

The supermarket will pay him £97.88,
which is not more than £100

→ No

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Mina works in a different shop.

The table shows some information about the wages for Bilal and the wages for Mina for the last six weeks.

		1	2	3	4	5	6
Wages (£)	Bilal	216.43	283.94	192.87	221.02	205.48	186.32
	Mina	296.56	308.71	188.96	259.32	126.40	283.21

Bilal says,

"My wages were more consistent than Mina's wages for the last six weeks."

- (b) Were Bilal's wages more consistent than Mina's wages?
Give a reason for your answer.

(3)

$$283.94 - 186.32 = 97.62$$

$$308.71 - 126.40 = 182.31$$

Range = largest - smallest. Working out that the range of Bilal's wages was £97.62 and the range of Mina's wages was £182.31

Yes, the range of Bilal's wages was less

The wages are less spread out so are more consistent

(Total for Question 12 is 6 marks)

TOTAL FOR SECTION B IS 48 MARKS
TOTAL FOR PAPER IS 64 MARKS