

Please check the examination details below before entering your candidate information

Candidate surname

Other names

**Pearson Edexcel
Functional Skills**

Centre Number

Candidate Number

*****Past Paper 6*****

Time: 1 hour 30 minutes

Paper Reference **PMAT2/C06**

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 Olivia plans to drive from Birmingham to Manchester non-stop.

The distance is 87 miles.

She has allowed 1.5 hours for the journey.

- (a) What is the average speed she must drive to complete the journey in 1.5 hours?

(2)

$$87 \div 1.5$$

Miles per hour means to divide the distance travelled in miles by the time taken in hours

58

mph



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

(1)

$$58 \times 1.5 = 87$$

Doing the opposite calculation to get back to the 87 miles

(Total for Question 1 is 3 marks)

2 Brian is a sports reporter.

Team A played 30 rugby matches.

The table shows information about the number of tries team A scored in these matches.

number of tries	number of matches	
0	3	0
1	7	7
2	11	22
3	9	27
total	30	$56 \div 30$

(a) Work out the mean number of tries team A scored per match.

(2)

A: Multiplying the number of tries for each category by the number of matches works out the total number of tries in each category.

B: Adding up all these totals gives an overall total of 56 tries in all the matches. Dividing this by the 30 matches gives the mean scored per match

1.86

tries

Brian wants to compare two teams.
He knows

- team A had a range of 3 tries
- team B had a range of 4 tries.

(b) Which team is more consistent scoring tries?
Explain why you think this.

(1)

A, as their range was less

Meaning that they are less spread out and so more consistent

(Total for Question 2 is 3 marks)

- 3 The head teacher at a school is organising for some year 7 and some year 8 pupils to go on a school trip.
72 people in total will go on the school trip.

There will be 1 adult to every 5 pupils. ← So the ratio of adults to pupils will be 1 : 5

The ratio of the number of year 7 pupils to the number of year 8 pupils will be 3 : 1

How many adults, year 7 pupils and year 8 pupils will go on the trip?

(4)

- $72 \div 6$ ← 1 + 5 = 6 parts in total in the ratio of adults to pupils which represent the 72 people. So dividing the 72 people by 6 works out that 1 part of the ratio is worth 12. So there are 12 adults
- 12×5 ← Multiplying the value of 1 part of the adults to pupils ratio by the 5 parts which represent the pupils works out that there are 60 pupils
- $60 \div 4$ ← 3 + 1 = 4 parts in total in the ratio of year 7 to year 8 which represent the 60 pupils. So dividing the 60 pupils by 4 works out that 1 part of the ratio is worth 15. So there are 15 year 8 pupils
- 15×3 ← Multiplying the value of 1 part of the year 7 to year 8 ratio by the 3 parts which represent the year 7 pupils works out that there are 45 year 7 pupils

12

adults

45

year 7 pupils

15

year 8 pupils

(Total for Question 3 is 4 marks)

- 4 Josh drives a lorry.
He is planning his route.

On the planned route there is a low bridge.
The maximum height of a lorry allowed under the bridge is 14 feet.

Josh knows the lorry is 4.2 m high.

Josh uses 1 foot = 0.3048 m.

- (a) Will the lorry be allowed under the bridge?
Show why you think this.

(2)

$14 \times 0.3048 = 4.2672$ ← Multiplying the 14 feet by the 0.3048 m each foot is converts it to 4.2672 m

The 4.2 m is less than 4.2672 m so the lorry will be allowed

→ Yes



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

(1)

$4.2672 \div 0.3048 = 14$ ← Doing the opposite calculation takes it back to the 14 feet

(Total for Question 4 is 3 marks)

5 Yasmine invests £4000

For the first 2 years she receives annual compound interest of 3%
In year three she receives annual compound interest of 2.5%

At the end of year three Yasmine wants to buy a car for £4500

She will use all of the investment and interest towards the cost of the car.

Work out how much more money Yasmine needs to buy the car.

You **must** show your working

(5)

$$\frac{100 + 3}{100}$$

Adding the 3% to 100% expresses the percentage it increases to each year. Putting this over 100 converts it into the decimal multiplier 1.03

$$\frac{100 + 2.5}{100}$$

Adding the 2.5% to 100% expresses the percentage it increases to each year. Putting this over 100 converts it into the decimal multiplier 1.025

$$4000 \times 1.03^2 \times 1.025$$

Multiplying the £4000 by 1.03 twice then multiplying by 1.025 increases the £4000 by 3% twice then 2.5% once. So the investment is worth £4349.69 after the three years

$$4500 - 4349.69$$

Subtracting the value of the investment after the three years from the £4500 cost of the car works out the difference and so how much more money is needed

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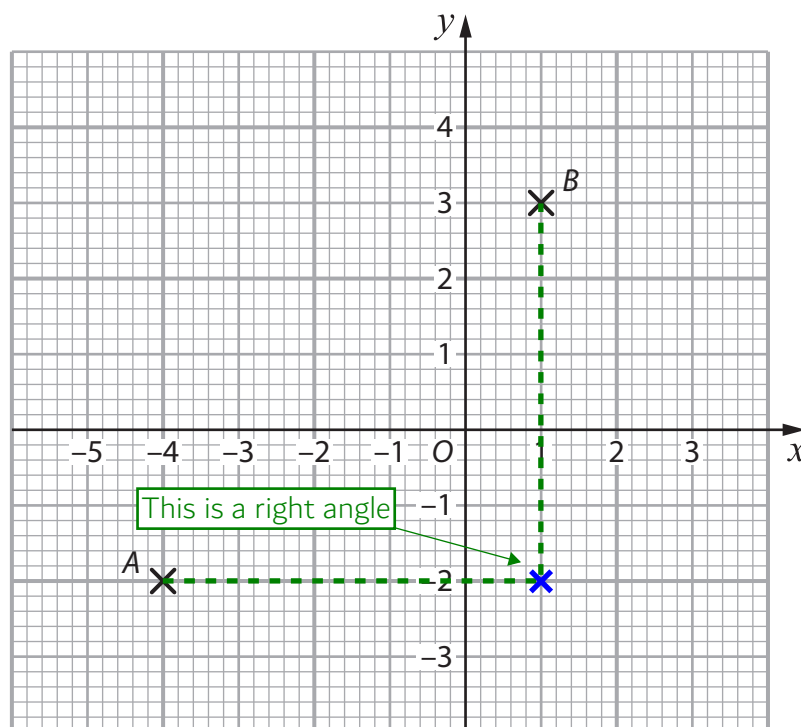
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£ 150.31

(Total for Question 5 is 5 marks)

6



(a) Write down the coordinates of point A.

(1)

x-coordinate y-coordinate
 (-4 , -2)

(b) Mark with a cross the point C on the grid so that angle ACB is a right angle.

(1)

(c) Write down the sum of the interior angles of a triangle.

(1)

180

°

(Total for Question 6 is 3 marks)

- 7 Carlos records the number of tweets his company posts every year on social media.

year	2014	2015	2016	2017	2018	2019
number of tweets	452	325	744	1022	712	750

- (a) Find the median number of tweets.

(2)

325, 452, 712, 744, 750, 1022

Putting the numbers of tweets in order from smallest to largest. Then underlining from both ends until the numbers in the middle are found

$712 + 744$

$1456 \div 2$

Both the 712 and 744 are in the middle so doing the mean of these two numbers to work out what is halfway between them

728

In 2019, 6% of the tweets were about job vacancies.

- (b) How many of the tweets in 2019 were about job vacancies?

(2)

$750 \div 100$

Dividing the 750 tweets in 2019 by 100 works out that 1% of the tweets is 7.5

7.5×6

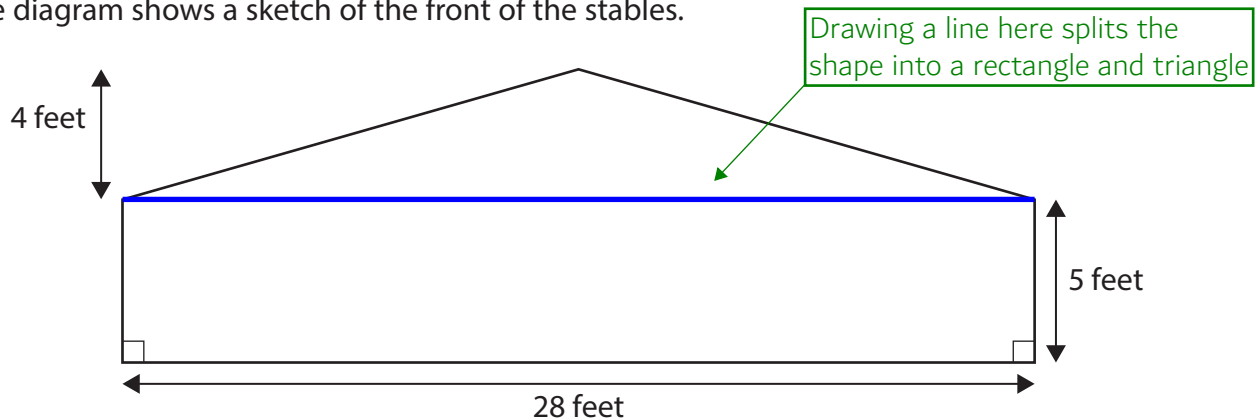
Multiplying the value of 1% by 6 works out 6% of the tweets

45

(Total for Question 7 is 4 marks)

- 8 Myra works as a volunteer at her local pony club.
She is going to cover the front of the stables with paint.

The diagram shows a sketch of the front of the stables.



Myra will buy the paint she needs.

1 tin of paint

- covers 7 m^2
- costs £6.45

She uses this rule.

Area in square feet $\div 10.764$ = area in square metres.

Work out the total cost of the tins of paint Myra will buy

(6)

$28 \times 5 = 140$	←	Area of rectangle = base $\times$ height. The base is 28 feet and the height is 5 feet. So the area of the rectangle is 140 square feet
28×4	←	Area of triangle = (base $\times$ height) $\div$ 2. The base is 28 feet and the height is 4 feet. So the area of the triangle is 56 square feet
$112 \div 2$	←	
$56 + 140$	←	Adding the area of the rectangle to the area of the triangle works out that the area of paint needed is 196 square feet
$196 \div 10.764$	←	Dividing the 196 square feet by 10.764 converts it to $18.2... \text{ m}^2$
$18.2... \div 7$	←	Dividing the $18.2... \text{ m}^2$ needed by the 7 m^2 each tin covers gives $2.6...$ tins. This needs to be rounded up to 3 whole tins
3×6.45	←	This works out the cost of 3 whole tins

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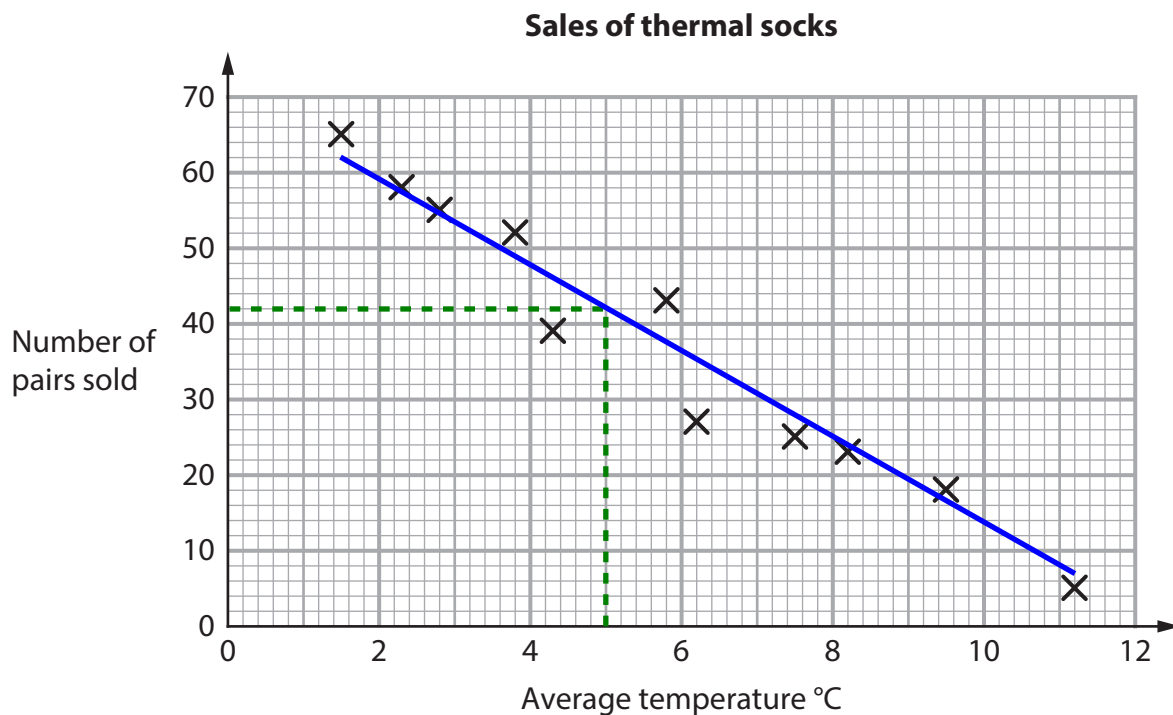
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£ 19.35

(Total for Question 8 is 6 marks)

9 Leona works in a sock shop.

The scatter diagram shows the number of pairs of thermal socks sold and the average temperature that month.



(a) Draw a line of best fit onto the scatter diagram.

A straight line going in the same direction as the points with roughly an equal spread above and below the line

(1)

(b) Describe the correlation between the number of pairs of thermal socks sold and the temperature.

Negative

As one variable increases (the average temperature) the other variable goes down (the number of pairs sold)

(1)

Next month the predicted average temperature is 5°C

Leona needs to estimate how many pairs of thermal socks she will sell.

(c) Estimate the number of pairs of thermal socks she will sell next month.

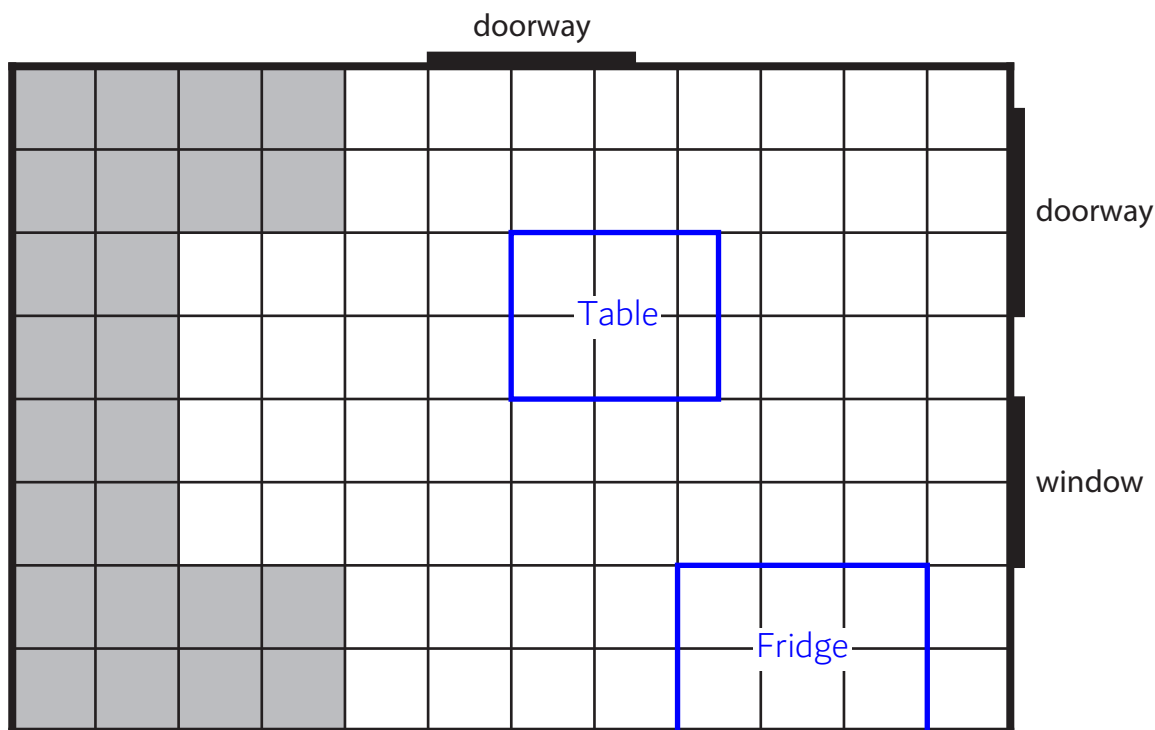
Reading up from 5°C, to the line, then across the the number of pairs

(1)

42

(Total for Question 9 is 3 marks)

- 10 Chris has moved to a new flat.
The grid shows a plan of the kitchen.



Key

 walls



cupboards

30 cm

1 square length on the grid represents 0.3 m in the kitchen

There are 100 cm in 1 m. Multiplying the 0.3 m by 100 converts it to 30 cm

Chris needs to put a fridge and a table in the kitchen.

The fridge will need a rectangular space 90 cm by 60 cm with the longest side against a wall but not against a window.

The table will need a rectangular space 60 cm by 75 cm and to be at least 60 cm away from the doorways, the cupboards, the fridge and not against a wall.

Draw the space for the fridge and the space for the table on the grid for Chris.
Remember to label the items.

(3)

(Total for Question 10 is 3 marks)

$$90 \div 30 = 3$$

$$60 \div 30 = 2$$

$$75 \div 30 = 2.5$$

Dividing each of the measurements by 30 cm works out how many square lengths they are

11 Nigel is the secretary of a football club.

He pays three match officials each week.

He has this information for the payments he made for the last 5 weeks.

Week	1	2	3	4	5
Payment made (£)	62.94	47.12	92.37	74.80	81.45

The table shows the match fees and expenses the officials will receive in week 6

official	fee	expenses
referee	£36	46 miles at 30p per mile
assistant 1	£27	14 miles at 30p per mile
assistant 2	£27	23 miles at 30p per mile

The total payment for each official is made up of a match fee and expenses.
Nigel pays 67% of the total payments for these three match officials.

Nigel thinks the payment he makes in week 6 is more than the median payment he made for the previous 5 weeks.

Is Nigel correct?

Show why you think this.

(5)

47.12, 62.94, 74.80, 81.45, 92.37

Putting the payments for the previous 5 weeks in order from smallest to largest then underlining from both ends until there is a number in the middle. So the median for the previous 5 weeks is £74.80

$46 + 14 + 23$

Adding the miles travelled for all three officials works out that they did 83 miles in total

83×0.30

Multiplying the 83 miles by the £0.30 per mile works out that the total of the expenses is £24.90

$24.90 + 36 + 27 + 27$

Adding the total of the expenses and the fees for all three officials works out that the total payments for these three match officials is £114.90

$114.90 \div 100$

Dividing the £114.90 by 100 works out that 1% is £1.149

$1.149 \times 67 = 76.983$

Multiplying the value of 1% by 67 works out that the 67% Nigel pays is £76.983

Yes

The £76.983 Nigel pays is more than the median of the previous 5 weeks, £74.80

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£

(Total for Question 11 is 5 marks)

12 Tammy wants to make chocolate sweets.

The sweets will be solid chocolate in the shape of a sphere.
Each sweet will have a radius of 2 cm.

Tammy will melt chocolate blocks to make the sweets.
Each chocolate block is a cuboid 19 cm by 14 cm by 0.75 cm.

She has this formula

$$\text{Volume of a sphere} = \frac{4}{3} \pi r^3$$

where r = radius
 $\pi = 3.14$

Tammy wants to make 45 sweets.
She thinks 7 blocks of chocolate are enough to make 45 sweets.

Is Tammy correct?
Show why you think this.

(6)

$$19 \times 14 \times 0.75$$

Volume of cuboid = length $\times$ width $\times$ height. So the volume of one cuboid chocolate block is 199.5 cm^3

$$199.5 \times 7 = 1396.5$$

Multiplying the volume of one cuboid chocolate block by 7 works out that the volume of chocolate in 7 blocks of chocolate is 1396.5 cm^3

$$\frac{4}{3} \times 3.14 \times 2^3$$

Substituting the radius of 2 cm for r and 3.14 for π in the formula for the volume of a sphere works out that the volume of one sweet is $33.4... \text{ cm}^3$

$$33.4... \times 45 = 1507.2$$

Multiplying the volume of one sweet by 45 works out that the volume of chocolate in 45 sweets is 1507.2 cm^3

The 1396.5 cm^3 in 7 blocks of chocolate is not enough for the 1507.2 cm^3 in 45 sweets

No

(Total for Question 12 is 6 marks)

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