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 3

Time: 1 hour 30 minutes | Paper Reference **PMAT2/C03**

Mathematics

Level 2

Section B (Calculator)

You must have:
Pen, 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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Hints

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 indicates what must be written in order to answer the questions and get the marks. The worked solutions have been designed to show the smallest amount of work which needs to be done to answer the question.

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

Anything written in orange in a rectangle doesn't have to be written in the exam and is there to show what should be put into a calculator or measured using a ruler or protractor.

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

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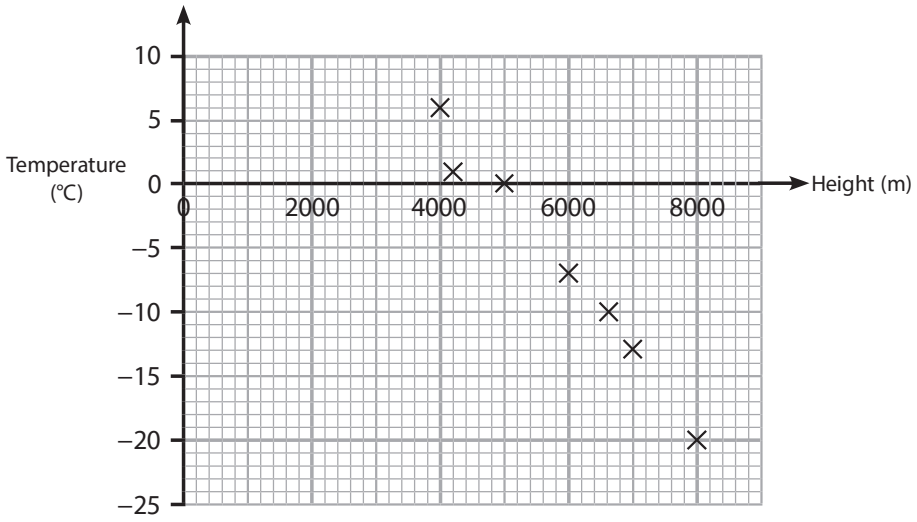
SECTION B

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

1 The scatter diagram shows the temperature at different heights on Mount Everest for one afternoon in May.



(a) Describe the relationship shown in this scatter diagram.

(1)

Positive correlation means that as one variable increases, the other increases. Negative correlation means that as one variable increases, the other decreases. No correlation means that there is no link between the variables. The height and the temperature are the variables

There are camps on Mount Everest.

Base camp A is at a height of 5400 m.
Camp 3 is at a height of 7500 m.

(b) Use the scatter diagram to work out the difference in temperatures between the two camps.

(2)

Plot on the graph where camp A and camp 3 would roughly be. Difference is largest - smallest

(Total for Question 1 is 3 marks)

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2 Jenni is an editor for a newspaper.
She checks information in an article.

The article states, 'In 2019 there were 300 people per square kilometre in the UK.'

Jenny knows that in 2019

- the area of the UK was 242 500 square kilometres
- the population of the UK was 66.9 million.

(a) Is the statement in the article correct?
Show why you think this.

(2)

Multiplying 66.9 by 1 million expresses 66.9 million.
People per square kilometres means to divide the number of people by the number of square kilometres

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

(1)

Multiplying the people per square kilometre by the number of square kilometres works out the population

(Total for Question 2 is 3 marks)

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3 Wesley is a salesman.

He wants to work out the total cost of the petrol he will use for travel next week.

Wesley knows

- he will drive a total of 520 miles
- his car uses 1 gallon of petrol per 28 miles
- petrol costs 128.4 pence per litre
- 1 gallon = 4.55 litres.

Wesley thinks the petrol he will use for travel next week will cost more than £100

Is Wesley correct?
Show why you think this.

(4)

1 gallon of petrol is used for every 28 miles travelled so dividing the 520 miles travelled by the 28 works out how many gallons will be used. Multiplying this by 4.55 converts it into litres as every gallon is 4.55 litres. Multiplying this by the cost of each litre in pounds works out the cost of the petrol. Dividing the 128.4 by 100 converts the cost per litre into pounds as there is 100 pence in a pound

(Total for Question 3 is 4 marks)

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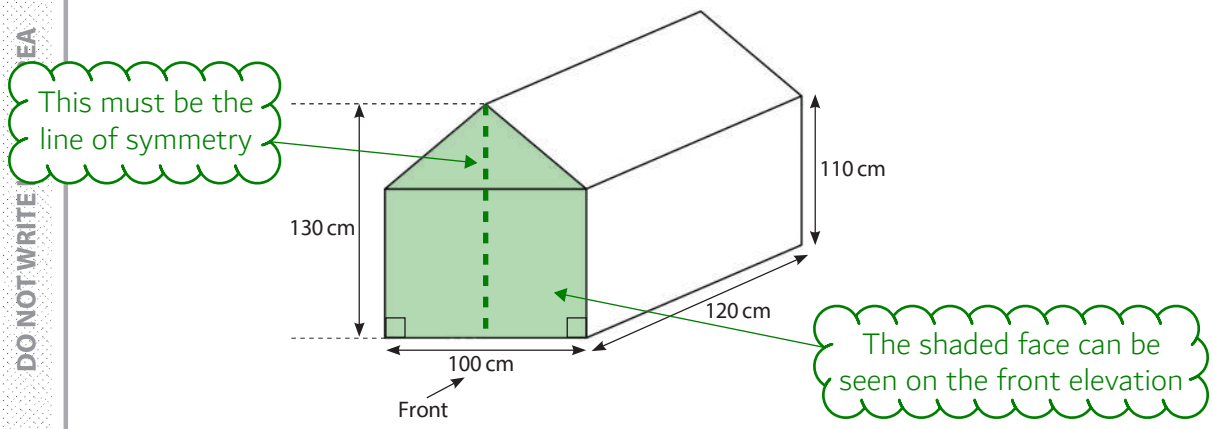
4 Anwar makes a playhouse for his children.



The front elevation of the playhouse has one line of symmetry.

Draw the front elevation of the playhouse on the grid.
Use the scale 1 : 20

(3)

The scale means that the real measurements are 20 times larger than what needs to be drawn on the elevation. So dividing all of the measurements by 20 works out what should be drawn. The height of the triangle can be found by subtracting the 110cm from the 130cm

(Total for Question 4 is 3 marks)

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5 In October Mr Barker gave a group of 250 students a history test.

These are the results.

Number of marks	Frequency		
1 to 5	20		
6 to 10	50		
11 to 15	120		
16 to 20	60		

Mr Barker estimates the mean mark to be 12

(a) Is Mr Barker correct?
Show why you think this.

(3)

Adding the lowest and highest number of marks in each category then dividing by 2 works out the midpoint for each category. Multiplying these midpoints by the frequency for each category gives an estimate of the total of each category. Adding all of these totals together gives an estimate of the overall total number of marks. Dividing this by the 250 students works out an estimate of the mean

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In the October test the lowest mark was 2 and the highest mark was 17

In November the same students took a similar test.
The lowest mark was 5 and the highest mark was 18

Mr Barker wants to write a statement comparing the spread of marks in the two tests.

(b) Write a statement to compare the spread of marks in the two tests.
You **must** show calculations to support your statement.

(2)

Range is a measure of the spread. Range = largest - smallest

(Total for Question 5 is 5 marks)

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6 Mia is the manager of an ice cream shop.
In August she sold 960 ice lollies.
In September she sold 810 ice lollies.

Mia thinks she sold 18% fewer ice lollies in September than in August.

Did Mia sell 18% fewer ice lollies in September than in August?

(3)

810 - 960 expresses the change. Putting this as a fraction of the original amount then multiplying by 100 to convert it into a percentage

(Total for Question 6 is 3 marks)

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7 Alex has two sets of four cards.
He writes a number on each card.

Alex picks one card from each set and multiplies the numbers to get a score.

The table shows some of the scores.

-5 x 2 = -10

	Card 1			
Card 2	**×**	**–5**	**7**	**–9**	**11**
	2	–10	14		22
	4		28	–36	
	–6	30	–42		
	8	–40	56		

(a) Complete the table.

(2)

Alex says,

'The probability that the score is negative is 0.5, which means there is a 5% chance that the score is negative.'

(b) Alex is incorrect.
Explain why.

To convert a decimal into a percentage multiply it by 100

(1)

Alex picks one card from each set.

(c) What is the probability that the score is 14?

1 out of the possible 16 scores is 14

(1)

(Total for Question 7 is 4 marks)

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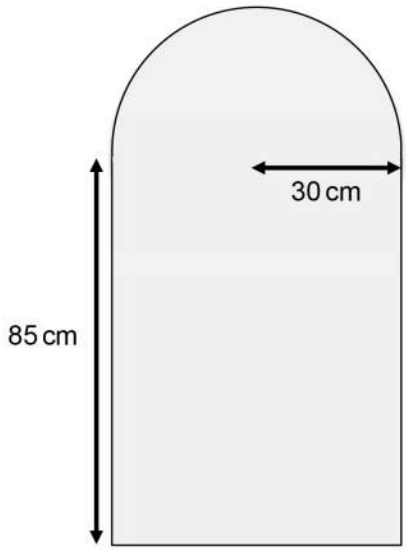
8 Abi has a mirror in the shape of a rectangle with a semicircle on one of the shorter edges.
The radius of the semicircle is 30 cm.
The longer edge of the rectangle is 85 cm.



Abi buys a 500 cm length of mirror trim to go around all the edges of the mirror.

She thinks she will use more than $\frac{2}{3}$ of the length of the mirror trim.

Is Abi correct?
Show why you think this.

(6)

Adding together all of the edges works out the length of mirror trim needed. Opposite sides of a rectangle are equal in length. The shorter edge of the rectangle is double the length of the radius. Circumference = π x diameter. Diameter = radius x 2. The curved edge of the semicircle is half of the circumference. Work out 2/3 of the 500cm and compare this to the length needed. 'Of' means to multiply

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(Total for Question 8 is 6 marks)

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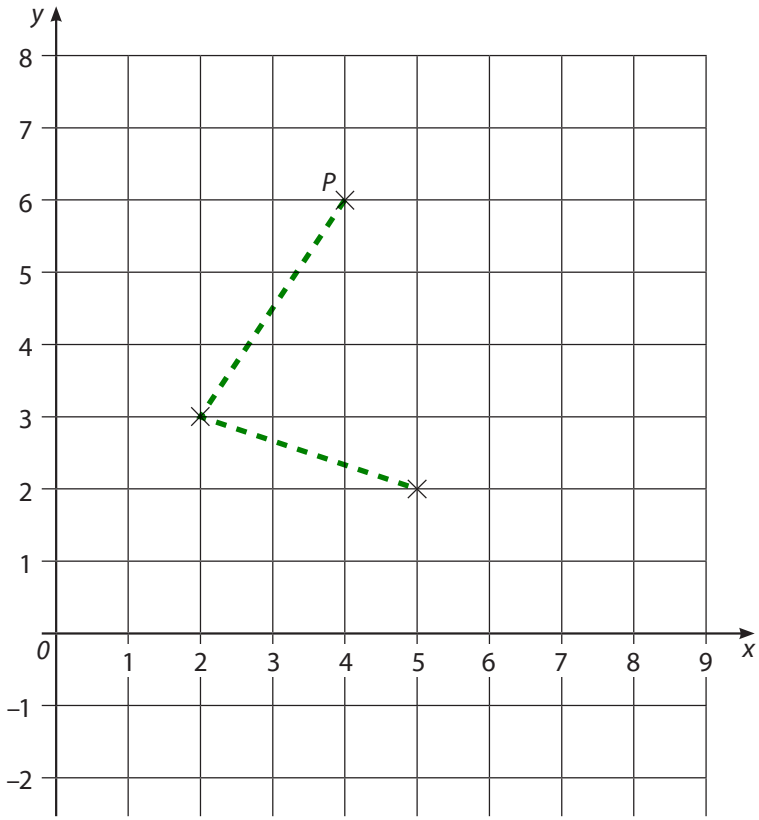
9 Karl plots 3 points on a grid.



(a) Write down the coordinates of the point *P*.

(x-coordinate , y-coordinate)

(1)

(,)

Karl plots another point.
He joins the four points to make a parallelogram.

(b) Write down a possible set of coordinates for the fourth point.
Plot the point on the grid.

Opposite sides on a parallelogram are equal in length and parallel

(2)

(,)

(Total for Question 9 is 3 marks)

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10 Andy and his brother set up eco cabins.
It takes the 2 of them 6 days to set up one eco cabin.

A friend starts working with them.

How many days will 3 people take to set up one eco cabin?

(3)

2 x 6 works out how many days worth of work have been done. Dividing this number of days worth of work by the 3 people works out how long it will take each person

days

(Total for Question 10 is 3 marks)

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11 Gavin is a car salesman.

The table shows the number of cars he sold in one week.

Mon	Tue	Wed	Thu	Fri	Sat
2	0	1	4	1	2

The cost of each car is £20 950

For every car Gavin sells he earns

- 1.25% of the cost of the car in commission
- a bonus of £50

Work out the median amount Gavin earned per day for this week.

(5)

Put the numbers of cars sold each day in order then cross out from each end until there are two in the middle. The median number of cars sold is halfway between these two, which can be found out by doing the mean of these two numbers. Mean = total/number, where total is the total of the two numbers and number is the number of numbers there are. Multiplying the median number of cars by the amount Gavin earns per car works out the median amount Gavin earned for this week. This is worked out by adding the £50 bonus to 1.25% of the cost of the car. 1.25% is turned into a multiplier by dividing it by 100, which converts it into a fraction which finds 1.25% when multiplied by

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(Total for Question 11 is 5 marks)

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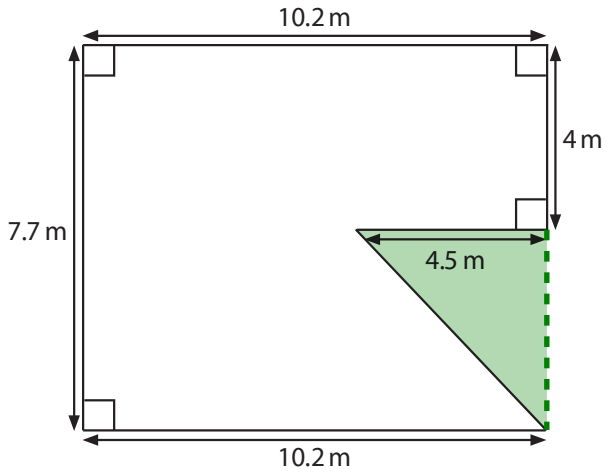
12 Maninder is the manager of a restaurant.
She wants to cover the floor of the restaurant with tiles.

This is a plan of the floor of the restaurant.



Maninder will buy the tiles in packs.
Each pack covers an area of 0.945 m^2
One pack of tiles costs £16.15

Tiles can be cut and joined.

Work out the total cost of the packs of tiles Maninder will buy.

(6)

Area of rectangle = length x width. Work out the area of the whole rectangle. Subtracting the area of the green triangle works out the area of the floor. Area of triangle = 1/2 x base x height. Dividing the area of the floor by the area of each pack works out how many packs are needed. There needs to be a whole number of packs. Multiply the number of packs by the cost of each pack to work out the total cost of the packs needed

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(Total for Question 12 is 6 marks)

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

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