

Please check the examination details below before entering your candidate information

Candidate surname

Other names

**Pearson Edexcel  
Functional Skills**

Centre Number

Candidate Number

**Practice Set 2**

Time: 1 hour 30 minutes

Paper Reference **PRACL2/C02**

**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  $\pi$  button take the value of  $\pi$  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 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](mailto:curtis@cgmaths.co.uk)

SECTION B

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

- 1 Luke plays a computer game where he manages a city. He buys two buildings.

Luke receives

- 135 coins every 8 hours from building A
- 36 coins every 15 minutes from building B.

Luke thinks he receives a total of 4000 coins in 24 hours from these buildings.

Is Luke correct?  
Show why you think this.

(3)

$$\frac{24}{8} \times 135 + \frac{24 \times 60}{15} \times 36 = 3861$$

The number of coins received from building A in 24 hours.  $24/8$  works out how many lots of 8 hours there are in the 24 hours. Multiplying this by the number of coins received every 8 hours

The number of coins received from building B in 24 hours.  $24 \times 60$  works out how many minutes are in 24 hours. Dividing this by the 15 minutes works out how many lots of 15 minutes there are in the 24 hours. Multiplying this by the number of coins received every 15 minutes

Adding the number of coins received from building A in 24 hours and the number of coins received from building B in 24 hours works out the total number of coins received in 24 hours

The 3861 coins received is less than the 4000 Luke thinks he receives so he is wrong

No

(Total for Question 1 is 3 marks)

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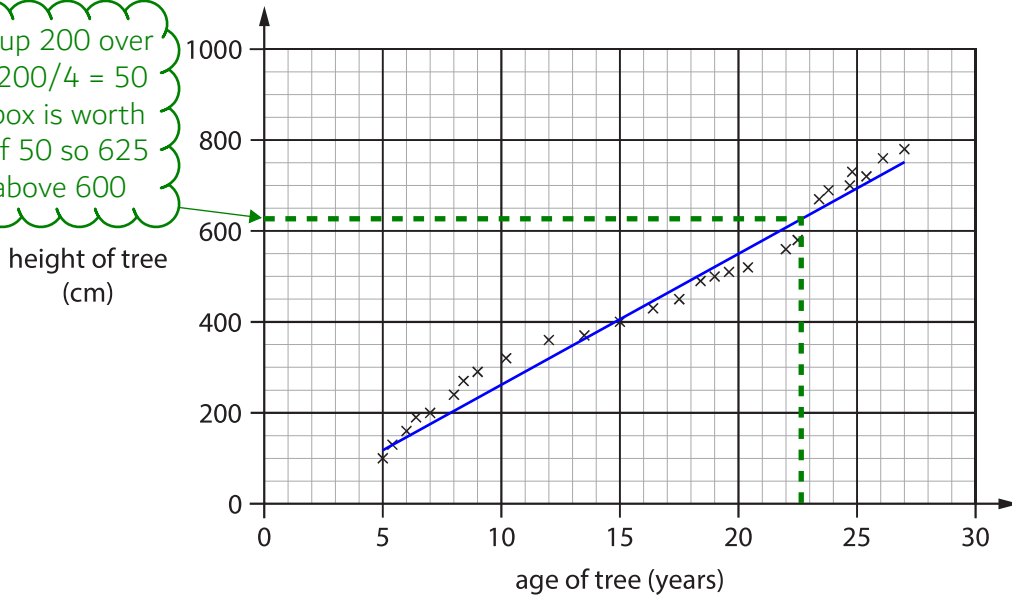
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2 The scatter diagram shows information about the age and height of some trees.

The scale goes up 200 over 4 small boxes.  $200/4 = 50$  so each small box is worth 50. 25 is half of 50 so 625 is half a box above 600



(a) Describe the relationship shown in the diagram.

(1)

Positive correlation

As the age of the trees increase, the height of the trees also increase. So this is positive correlation as both variables are increasing

(b) Draw a line of best fit on the diagram.

(1)

(c) Estimate the age of a tree with a height of 625 cm.

(1)

Drawing a line across from 625 to the line of best fit then down gives an estimate of the age. It is slightly below 23 but as it is an estimate we can round it to the nearest whole number

23 years

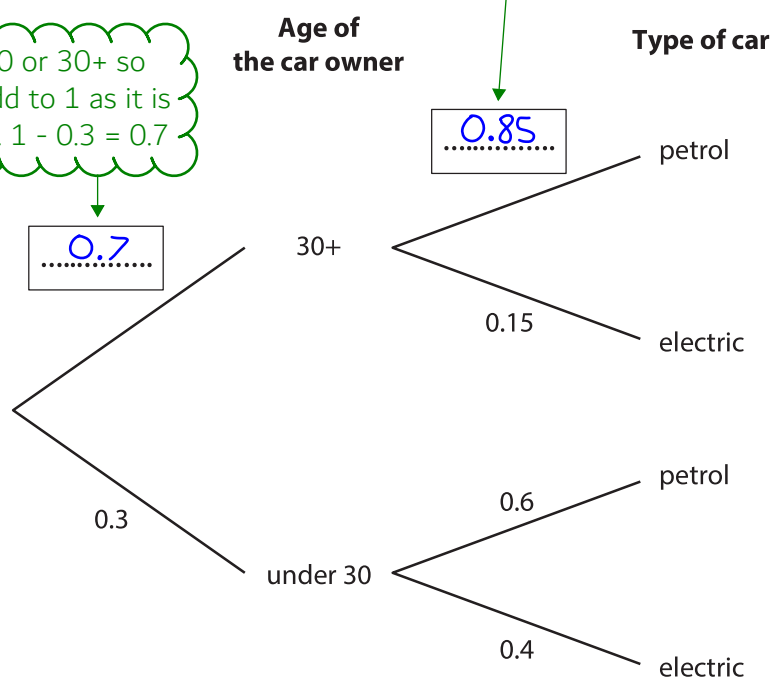
(Total for Question 2 is 3 marks)

3 The tree diagram shows the probability of selecting a car owner by their age and the type of car they have.

(a) Complete the probability tree. (2)

They are either petrol or electric so both probabilities must add to 1 as it is certain to be one of them.  $1 - 0.15 = 0.85$

They are either under 30 or 30+ so both probabilities must add to 1 as it is certain to be one of them.  $1 - 0.3 = 0.7$



A person is chosen at random.

(b) Work out the probability that this person is under 30 and has an electric car. (2)

$0.3 \times 0.4$

Under 30 AND electric. AND means to multiply the probabilities

0.12

(Total for Question 3 is 4 marks)

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- 4 Sasha is the manager at a factory.  
Last weekend 15 employees assembled 390 identical wardrobes.  
Sasha wants 1200 of these wardrobes to be assembled next weekend.

How many employees does Sasha need next weekend?  
You **must** show your working.

(3)

$$\frac{1200}{390} \times 15$$

1200/390 works out how many lots of the 390 wardrobes are needed. Each lot needs 15 employees so this is multiplied by 15

The 46.1... is rounded up to 47 as there cannot be a decimal number of employees and 46 wouldn't be enough

47 employees

(Total for Question 4 is 3 marks)

5 Vera is a shop manager.

She has this information about the income in her shop for eight weeks this year.

Week	1	2	3	4	5	6	7	8
Income (thousands of £)	53.5	42.3	39.8	45.1	52.4	19.4	47.9	42.5

The median income for the same eight weeks last year was £49 300

Vera knows that the median income for these eight weeks has decreased this year compared to last year.

(a) Work out the percentage decrease of the median income.

Give your answer to 2 decimal places.

~~19.4, 39.8, 42.3, 42.5, 45.1, 47.9, 52.4, 53.5~~<sup>(4)</sup>

Listing the numbers in order then crossing out from each end until there are two left in the middle to work out the median

$$\frac{42.5 + 45.1}{2}$$

There are two numbers in the middle so the median is the mean of both of these

$$\frac{43.8 \times 1000 - 49300}{49300} \times 100$$

The median of 43.8 is in thousands of pounds so is multiplied by 1000. Percentage change = (new - original)/original x 100

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The answer of  $-11.15618661$  is rounded to two decimal places and the negative is ignored as it is asking for percentage decrease, not percentage change

11.16 %



(b) Show a check of your calculation for the median.

(1)

$$43.8 \times 2 - 45.1 = 42.5$$

Doing a reverse calculation on the median. There is no need to redo the listing and crossing out

(Total for Question 5 is 5 marks)

- 6 Carlos invests £4500 for 3 years.  
He receives compound interest of 1.5% per year.

Carlos thinks the total of the money he invests and the interest will be more than £4750 at the end of the 3 years.

Is he correct?  
Show why you think this.

$$4500 \times \left( \frac{100 + 1.5}{100} \right)^3 = 4705.55$$

(3)

100 + 1.5 works out the percentage it increases to when increased by 1.5%. Putting this over 100 converts it into a multiplier. Raising it to the power of 3 as it needs to be multiplied by 3 times. Multiplying this by the 4500 increases it by 1.5% 3 times

£4705.55 is less than £4750 so Carlos is wrong

No

(Total for Question 6 is 3 marks)

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7

(a) Write 21.9% as a decimal.

(1)

Type in 21.9% into the calculator, press =, then press the SD button until it is a decimal

0.219

(b) Work out 37% of 4618.57  
Give your answer to 1 decimal place.

(2)

37% x 4618.57

'Of' means multiply

The answer of 1708.8709 is rounded to 1 decimal place

1708.9

(c) Write fifty-one million forty-nine thousand one hundred and twelve in figures.

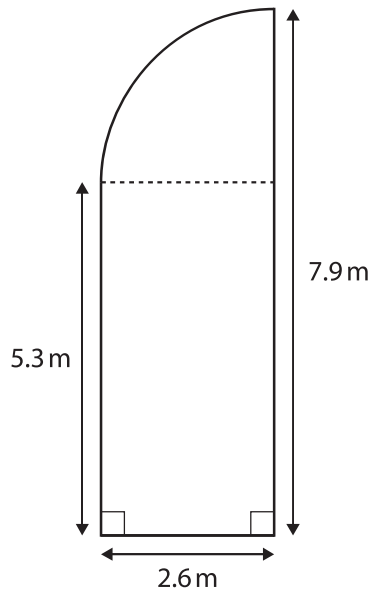
(1)

51049112

(Total for Question 7 is 4 marks)

8 Jessie needs to cover a wooden floor with varnish.

The floor is in the shape of a rectangle and a quarter circle.



A tin of varnish

- covers  $6 \text{ m}^2$
- costs £5.41

Jessie has £25 to buy the tins of varnish she needs to cover this wooden floor.

Is £25 enough to buy all the tins of varnish Jessie needs?

$$\frac{5.3 \times 2.6 + \frac{1}{4} \times \pi \times 2.6^2}{6}$$

(6)

Area of rectangle = length  $\times$  width. The length is 5.3m and the width is 2.6m.  
Area of circle =  $\pi r^2$ , where  $r$  is the radius. The radius is 2.6m as the opposite sides on a rectangle are equal and the top side of the rectangle is the radius.  
Multiplying this by  $\frac{1}{4}$  as it is a quarter circle the area will be  $\frac{1}{4}$  of the area of the whole circle. Adding the area of the rectangle and the area of the quarter circle works out the total area of the wooden floor. Dividing this by the  $6 \text{ m}^2$  covered by 1 tin works out how many tins are needed

$$4 \times 5.41 = 21.64$$

The 3.1... tins is rounded up to 4 as there needs to be a whole number of tins and 3 wouldn't be enough. Multiplying this by the cost of one tin works out the total cost of buying the tins needed

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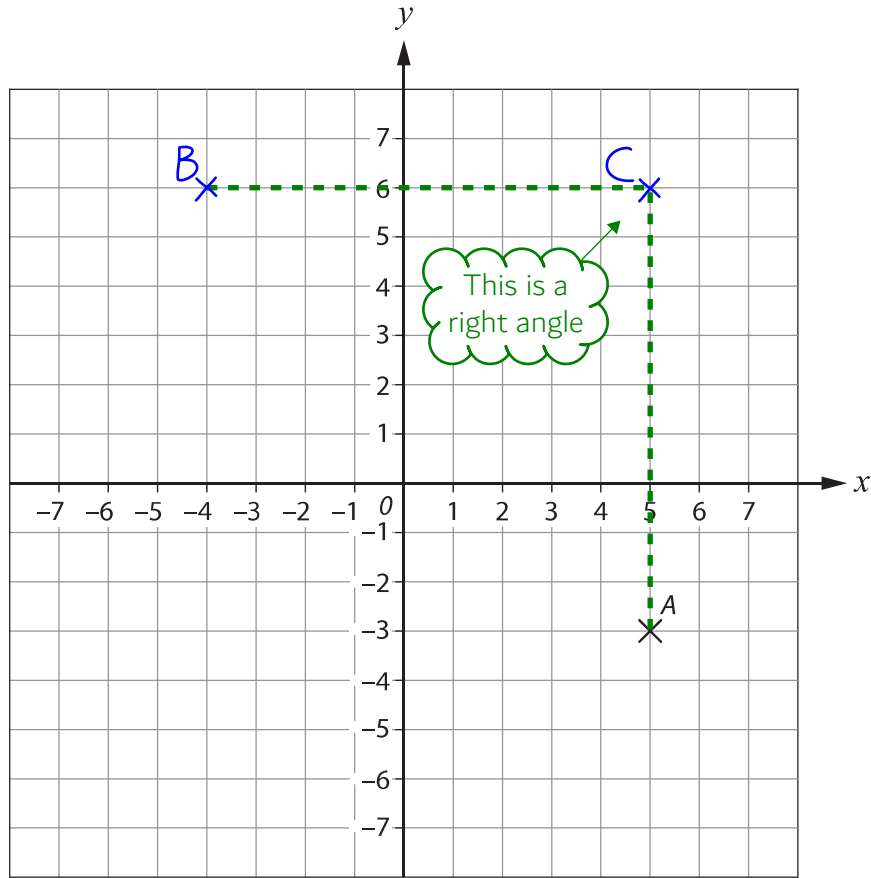
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The £21.64 is less than £25 so she has enough money to buy all the tins she needs

Yes

(Total for Question 8 is 6 marks)

9 Here is a coordinate grid.



(a) Write down the coordinates of point A.

(1)

( 5 , -3 )

(b) Plot point B with coordinates  $(-4, 6)$  on the grid.  
Remember to label your point.

(1)

(c) Plot a point C on the grid so that angle  $ACB$  is a right angle.  
Remember to label your point.

(1)

(Total for Question 9 is 3 marks)

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- 10 Kevin buys a second-hand car for £7346  
He knows that the car is worth 27% less than when it was brand new.  
Kevin thinks that the car cost more than £9000 when brand new.

Is Kevin correct?  
Show why you think this.

(3)

$$\frac{7346}{100-27} \times 100 = 10063.01$$

100 - 27 works out the percentage of the original it has decreased to. Dividing by this works out 1% of the original. Multiplying this by 100 works out the full 100% of the original price

Yes

(Total for Question 10 is 3 marks)

11 Emma is the recruitment manager in a large company.

She has this information about the number of workers in each of the 20 offices of the company.

number of workers	number of offices
1 to 20	9
21 to 40	8
41 to 60	2
61 to 80	1

Emma estimates the mean number of workers in an office as 30

- (a) Is Emma correct?  
Show why you think this.

$$\frac{1+20}{2} \times 9 + \frac{21+40}{2} \times 8 + \frac{41+60}{2} \times 2 + \frac{61+80}{2} \times 1$$

20

Adding the highest and lowest possible number of workers in each category then dividing by 2 works out the mean of each of them, which is the midpoint. Multiplying these midpoints by the number of offices estimates the total number of workers in all of the offices per category. Adding all of these together works out an estimate of the total number of workers in all of the offices. Dividing this by the 20 offices works out the estimated mean number of workers in an office

25.5

The estimated mean is not 30 so Emma is not correct

No

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200 people apply to work at a new office.  
49 of these people are employed.

(b) Work out 49 as a percentage of 200

(2)

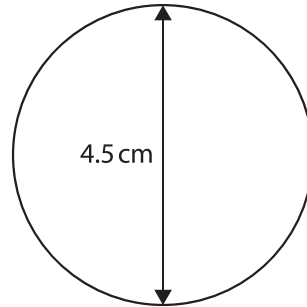
$$\frac{49}{200} \times 100$$

Expressing the 49 out of 200 as a fraction then multiplying it by 100 converts it into a percentage

24.5 %

(Total for Question 11 is 5 marks)

- 12 Claire is a designer.  
She needs to put some lights around a circular bandstand in a park.  
Claire has this scale diagram of the plan view of the bandstand.



scale 1 : 200

Claire knows that

- a set of lights is 4.75 m in length
- each set of lights costs £27.99

(a) Work out the total cost for the sets of lights Claire needs.

(5)

$$\frac{\pi \times 4.5 \times 200}{4.75 \times 100}$$

Multiplying the 4.5cm by 200, as the scale is 1 : 200, works out the actual diameter of the bandstand in centimetres. Circumference =  $\pi d$ , where  $d$  is the diameter. Multiplying the 4.75m by 100 converts it into centimetres. Dividing the circumference by this works out how many lots of 4.75m go around the bandstand and therefore how many sets of lights will be needed

$$6 \times 27.99$$

The number of sets of lights needs to be a whole number so the 5.9... is rounded to 6. 5 wouldn't be enough. Multiplying the 6 sets by the cost of each set works out the total cost of the lights

£ 167.94

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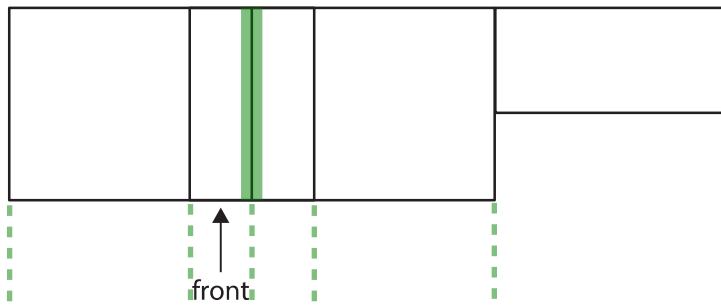
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Here is a plan view of another building Claire designs.



An apprentice draws the front elevation of this building.

(b) Which sketch below can be the front elevation for this building?  
 Tick (✓) the correct answer. (1)

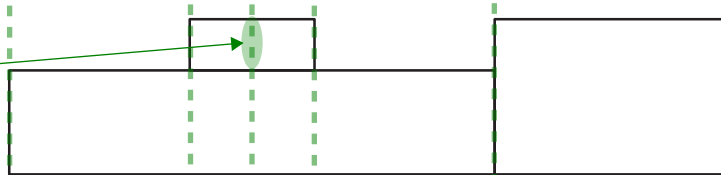
There is no feature here to cause the line in the middle of the plan

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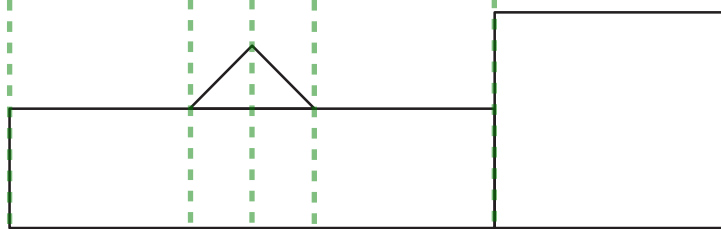


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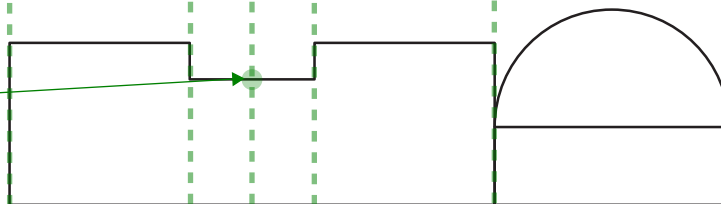


(✓)



There is no feature here to cause the line in the middle of the plan

( )



(Total for Question 12 is 6 marks)

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