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 3

Time: 1 hour 30 minutes | Paper Reference **PRACL2/C03**

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 ▶

S68463A

1/1/1/1

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

.CG Maths.

SECTION B

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

1 Susie wants to make a dress.

To make the dress she needs a piece of fabric with a length of $2\frac{3}{4}$ yards.
Fabric is sold in lengths measured in cm.

1 inch = 2.54 cm
1 yard = 36 inches

Work out the length of fabric, in cm, Susie needs to make the dress.
You **must** show your working.

(3)

$2\frac{3}{4} \times 36 \times 2.54$

Each yard is 36 inches so multiplying the number of yards by 36 converts it into inches. Every inch is 2.54 centimetres so multiplying this by 2.54 converts it into centimetres

251.46 cm

(Total for Question 1 is 3 marks)

2 Jamal owns a car paint repair business.
He has 375 ml of thinner.

Jamal has plenty of colour and hardener
He has to mix colour, hardener and thinner in the ratio 2 : 1 : 10 to make car paint.

Work out the maximum amount of car paint Jamal can make with 375 ml of thinner.

(3)

$\frac{375}{10} \times 13$

10 parts of the ratio represents the amount of thinner. So dividing the amount of thinner by 10 works out what 1 part of the ratio is worth. There are 13 parts in total in the ratio, as 2 + 1 + 10 = 13, so multiplying by 13 works out what the total amount of car paint Jamal can make

487.5 ml

(Total for Question 2 is 3 marks)

3 Airon is a festival promoter.

He says

"In 2019 I sold 105 276 tickets.
This is 7% less than the number of tickets I sold in 2018."

(a) How many tickets did Airon sell in 2018?

(3)

$\frac{105276}{100-7} \times 100$

100 - 7 works out the percentage of the amount sold in 2018 the amount sold in 2019 is. Dividing by this works out what 1% of the amount sold in 2018 is. Multiplying by 100 works out the full 100%

113200

☑

(b) Show a check of your answer.

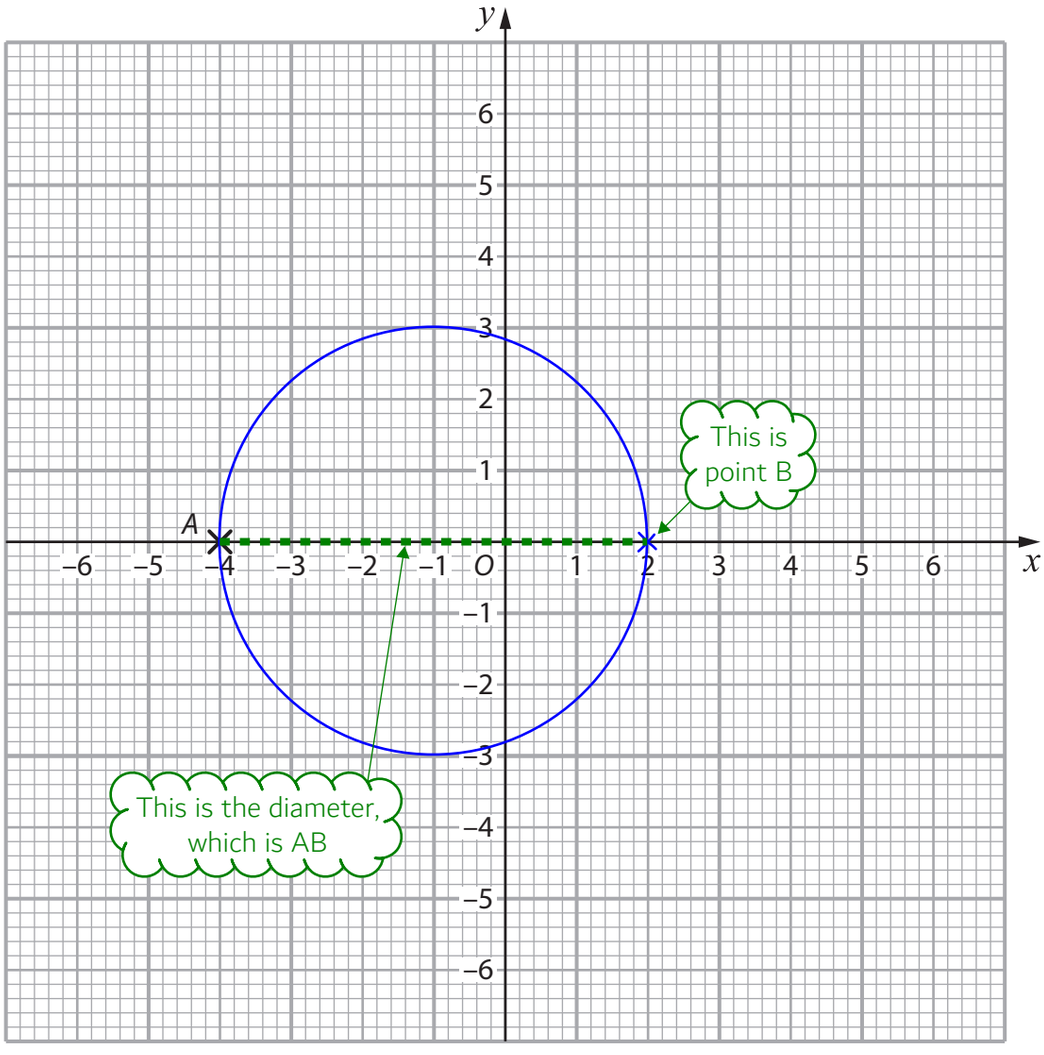
(1)

$\frac{113200}{100} \times (100-7) = 105276$

Doing the exact opposite calculation takes us back to the amount sold in 2019

(Total for Question 3 is 4 marks)

4



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

(1)

(−4 , 0)

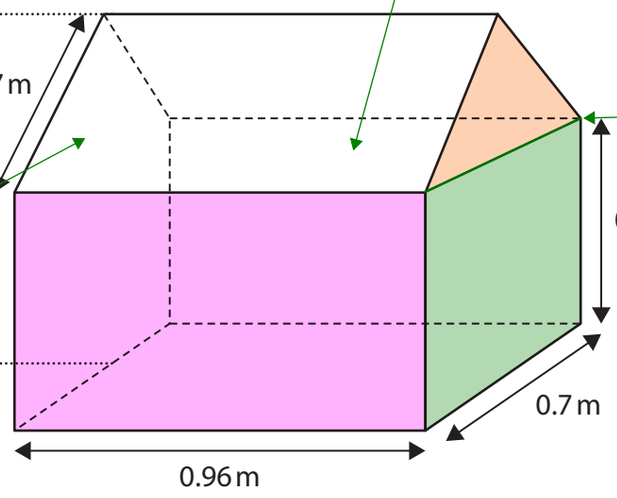
B is the point (2, 0).

(b) On the grid draw a circle with diameter *AB*.

(2)

(Total for Question 4 is 3 marks)

5 Here is a diagram of a dolls house Jayden has made.



The face at the back is the same as the pink face so we should work out 2 lots of the area of the pink face

The pentagon can be split into a rectangle and a triangle

The face on the left is the same as the pentagon on the right so we should work out 2 lots of the area of the green rectangle and orange triangle

Subtracting this from the 0.75m works out the height of the orange triangle

Two faces are each in the shape of a pentagon with a vertical line of symmetry.
All other faces are rectangular.
The base angles of each pentagon are right angles.

Jayden wants to cover all the surfaces of the dolls house with paint.
He knows the total area of the base and the roof is $1.3824\,m^2$

Jayden has enough paint to cover $3.5\,m^2$

Has Jayden got enough paint to cover all the surfaces of the dolls house?
Show why you think this.

(5)

$1.3824 + 2 \times 0.96 \times 0.63 + 2 \times 0.7 \times 0.63 + 2 \times \frac{1}{2} \times 0.7 \times (0.75 - 0.63)$

The area of the base and the roof

The area of 2 lots of the orange triangle. Area of triangle = 1/2 x base x height. The base is 0.7m and the height is (0.75 - 0.63)m

The area of 2 lots of the pink face. Area of rectangle = length x width. The length is 0.96m and the width is 0.63m

The area of 2 lots of the green rectangle. Area of rectangle = length x width. The length is 0.7m and the width is 0.63m

Adding the area of the base and the roof, 2 lots of the pink face, 2 lots of the green rectangle and 2 lots of the orange triangle gives the total area of all of the surfaces of the dolls house

3.558

The $3.5m^2$ Jack can cover is less than the $3.558m^2$ needed so he doesn't have enough paint

No

(Total for Question 5 is 5 marks)

6 Here is a formula.

$$m = \frac{2.67a}{4y}$$

Find the value of m when $a = 8$ and $y = 3.5$
Give your answer correct to 3 decimal places.

(3)

$\frac{2.67 \times 8}{4 \times 3.5}$ ← Substituting a for 8 and y for 3.5

The answer of 1.52571... is rounded to 3 decimal places →

1.526

(Total for Question 6 is 3 marks)

DO NOT WRITE IN THIS AREA DO NOT WRITE IN THIS AREA DO NOT WRITE IN THIS AREA DO NOT WRITE IN THIS AREA

7 Nikos owns a restaurant.

The table shows information about the number of customers that visited the restaurant on each of the 31 nights in August.

Number of customers	Frequency		
1 – 15	2		
16 – 30	7		
31 – 45	12		
46 – 60	10		

The mean number of customers per night in July was 32

Nikos thinks the mean number of customers per night in August was more than the mean number of customers per night in July.

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

(3)

$$\frac{\frac{1+15}{2}\times 2+\frac{16+30}{2}\times 7+\frac{31+45}{2}\times 12+\frac{46+60}{2}\times 10}{31}$$

Adding the lowest and highest number of each category then dividing by 2 works out the mean of each category, which is the midpoint. Multiplying the midpoints by the frequency works out an estimated total number of customers for each category. Adding these all together works out the estimated total number of customers. Dividing this by the number of nights works out the estimated mean number of customers per night

37.5

The estimated mean for August was 37.5 and this is higher than the mean of 32 in July so Nikos is probably correct

Yes

☑ (b) Show a check of your mean calculation.

(1)

$37.5... \times 31 = 1163$

Doing a reverse calculation. Multiplying the estimated mean by the number of nights gives the total number of customers

(Total for Question 7 is 4 marks)

8 Benji sells items in a shop and online.

In a survey he asked 100 people if they

- prefer to buy items in a shop or online
- are aged under 25 years, 25 to 40 years or over 40 years.

56 of the 100 people prefer to buy online.
27 of the people aged under 25 years prefer to buy online.
12 of the 33 people aged 25 to 40 years prefer to buy in a shop.

Of the people aged over 40 years, 8 prefer to buy online and 17 prefer to buy in a shop.

One person who prefers to buy in a shop is chosen at random to win a prize.

(a) What is the probability that this person is aged under 25 years?
You **must** show your working.

(4)

	<25	25-40	40<	
S	15	12	17	44
O	27		8	56
		33		100

Creating a two-way table is a good way of organising the information given. Completing it until we have the total number of people who prefer to buy in a shop and the number of people out of these who are under 25

15 out of the 44 people who prefer to buy in a shop are under 25

$\frac{15}{44}$

Yesterday Benji made

- 48 sales in the shop
- 76 sales online.

(b) What fraction of the total number of sales made yesterday were in the shop?
Write your fraction in its simplest form.

(2)

$\frac{48}{48+76}$

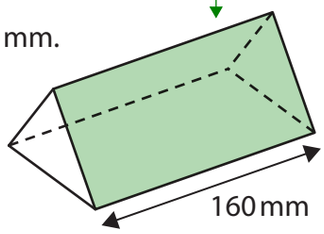
Adding the number of sales in the shop and the number of sales online works out the total number of sales. Expressing the number of sales in the shop as a fraction of this. Typing this into the calculator gives a simplified fraction

$\frac{12}{31}$

(Total for Question 8 is 6 marks)

This rectangular face will be visible from the side

9 Maisie is designing packaging for a perfume bottle.
The packaging is in the shape of a triangular prism with length 160 mm.

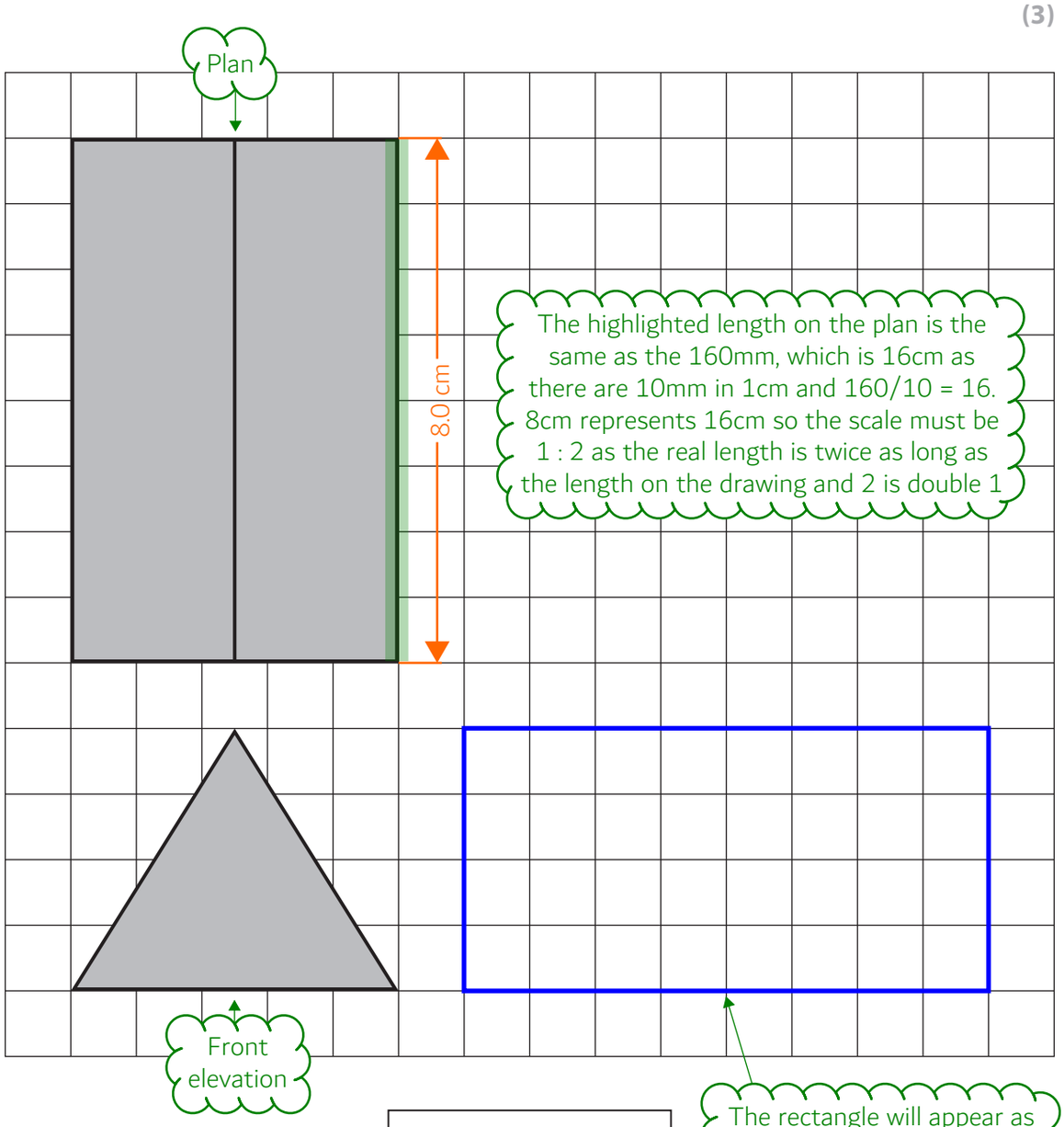


Maisie has drawn the front elevation and the plan of the prism on the centimetre grid below.

Maisie needs to draw the side elevation to complete the design drawings.

Draw the side elevation for Maisie.
Remember to complete the scale.

(3)



The highlighted length on the plan is the same as the 160mm, which is 16cm as there are 10mm in 1cm and 160/10 = 16. 8cm represents 16cm so the scale must be 1 : 2 as the real length is twice as long as the length on the drawing and 2 is double 1

Scale 1: 2

The rectangle will appear as long as on the plan and as tall as on the front elevation

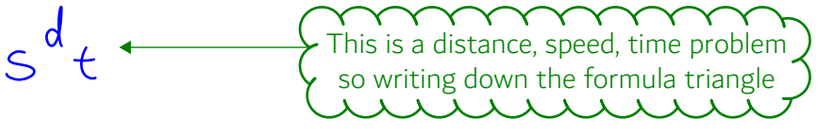
(Total for Question 9 is 3 marks)

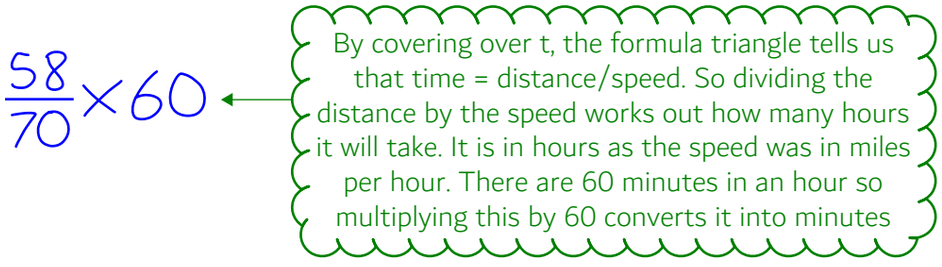
10 Lucia is driving to a meeting.
She needs to drive for 58 miles on the motorway.

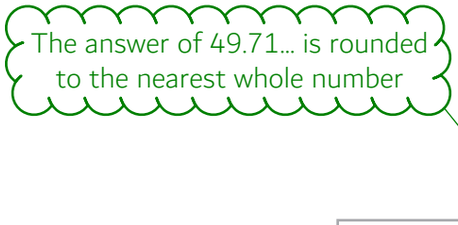
The maximum speed limit on the motorway is 70 mph.
Lucia will not drive over the speed limit.

Work out the minimum time Lucia will spend driving on the motorway.
Give your answer correct to the nearest minute.

(3)







50 minutes

(Total for Question 10 is 3 marks)

11 Matt and Gabrielle are planning their wedding.
There will be 150 people at the reception.

All of the tables at their reception

- seat a maximum of 8 people
- have a circular top of diameter 1.7 m

Matt and Gabrielle want to put ribbon around the top edge of each table.
They will allow for an extra 65 cm of ribbon per table for a bow.

Ribbon is sold in rolls.
Each roll of ribbon is 30 m in length.

How many rolls of ribbon do Matt and Gabrielle need to buy to decorate the minimum number of tables needed at their reception?

(5)

$\frac{150}{8}$ ← This works out that 18.75 tables are needed

$\frac{19(\pi \times 1.7 + \frac{65}{100})}{30}$

Circumference = πd, where d is the diameter. The diameter is 1.7m so π x 1.7 works out the distance around the top edge of each table. There are 100cm in 1m so dividing the 65cm by 100 converts it into metres. Adding this to the distance around the top edge of each table works out the amount of ribbon needed for each table. The 18.75 tables needs to be rounded up to 19 for there to be enough tables. Multiplying this by the amount of ribbon needed for each table works out the total amount of ribbon needed. Dividing this by the 30m on each roll works out how many rolls are needed

The answer of 3.79... is rounded up to 4 as 3 rolls wouldn't be enough and there needs to be a whole number of rolls

4

(Total for Question 11 is 5 marks)

12 Jana is writing a report about wages.

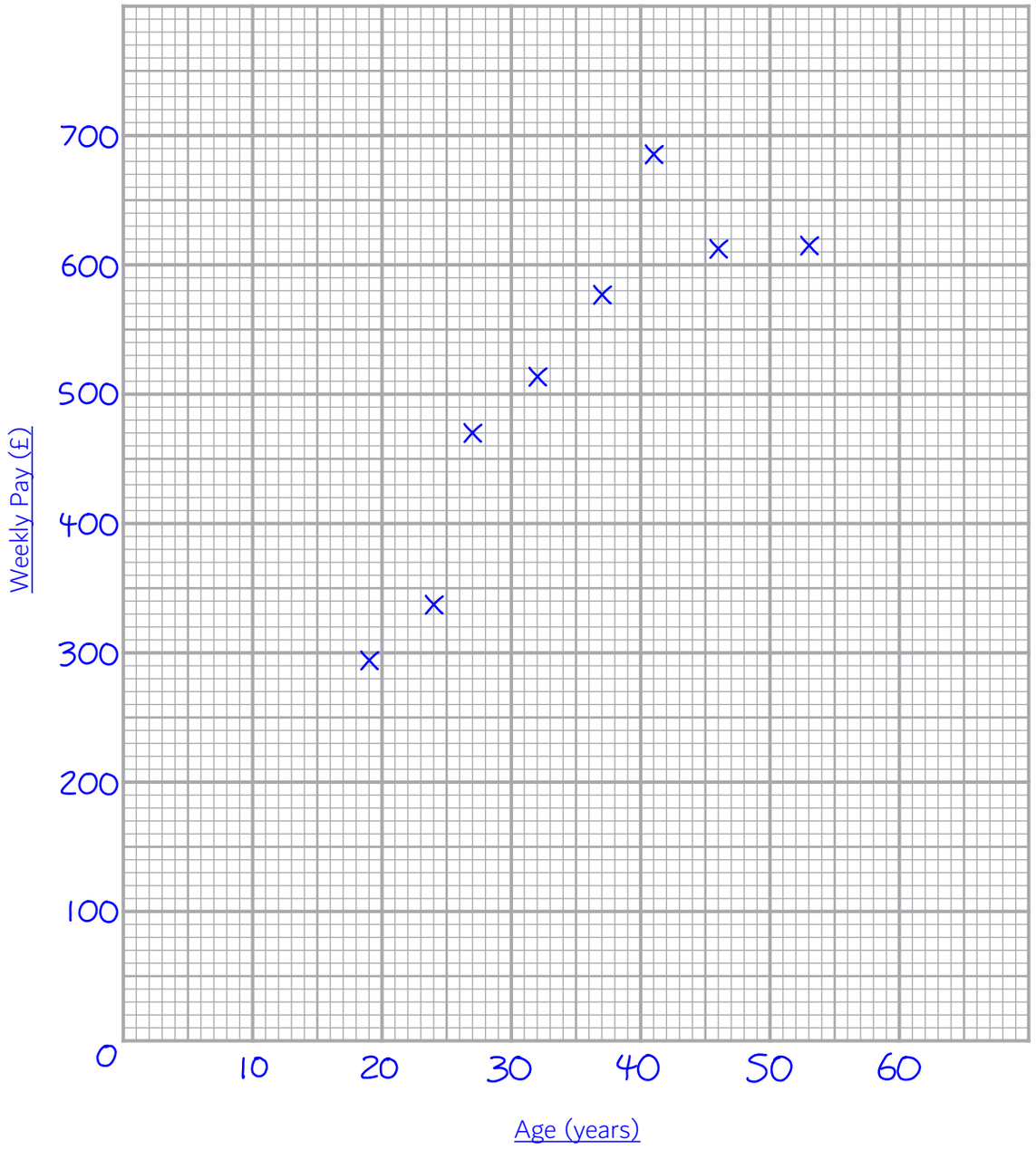
She has this information about the ages and weekly pay of eight men.

Age (years)	27	41	32	19	46	37	24	53
Weekly pay (£)	470	686	514	295	612	578	338	615

Jana wants to draw a diagram to see if there is a relationship between age and weekly pay for these eight men.

(a) Draw a suitable diagram for Jana.

(3)



(b) What type of correlation describes the relationship between age and weekly pay for these men?

(1)

Generally, as the age increases so does the weekly pay

Positive

Jana wants to compare the variation in weekly pay of men with the variation in weekly pay of women.

She finds the range of weekly pay for a sample of eight women is £437

(c) Write a comment comparing the variation in weekly pay for men and for women. Support your comment with a calculation.

(2)

686 - 295 = 391

Range = largest - smallest. The largest weekly wage for the men was £686 and the smallest was £295

Pay for men has less variation

As the range is less. Variation measures how spread out the weekly pays were

(Total for Question 12 is 6 marks)

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