

GCSE – Everything I need to know about drawing graphs and charts

Pie Charts –

- #TopTip Find the magic number $360 \div$ total number in survey
- Angle for each group = frequency in each group times the magic number
- Draw a line from centre to 12 o'clock
- Draw each angle accurately
- Label each group

This table shows information about the colour of jelly babies in a bag.

Draw a pie chart to illustrate these results. You should show how you calculate the angles of your pie chart.

[4]

Colour of Jelly Baby	Frequency
Red	14
Yellow	10
Green	4
Black	8

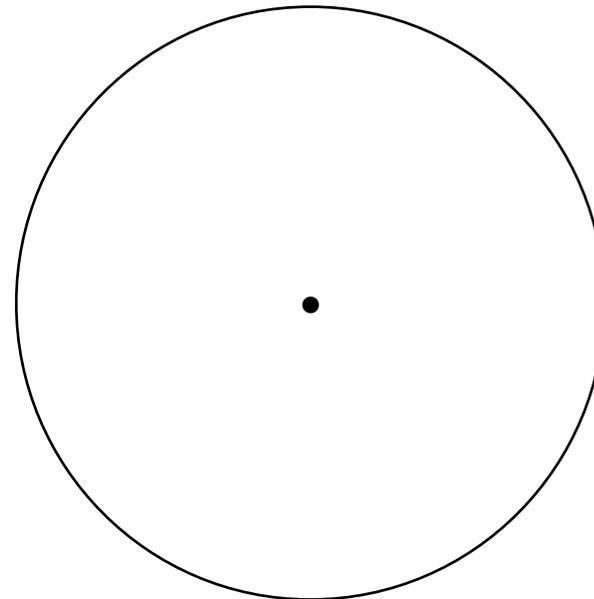
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Scatter Diagrams

— In your own words explain how to construct a scatter diagram

#TopTip

Plot the points – **don't** join them up

Draw the line of best fit

Recognise correlation  Positive

 Negative

A number of students measured the length of their thumb in millimetres and the length of their foot in centimetres.

Thumb, mm	56	70	48	54	62	64
Foot, cm	24	36	20	22	28	32

(a) Draw a scatter diagram to display these measurements. [2]

(b) (i) For the given data, find one point that the line of best fit needs to pass through. [2]

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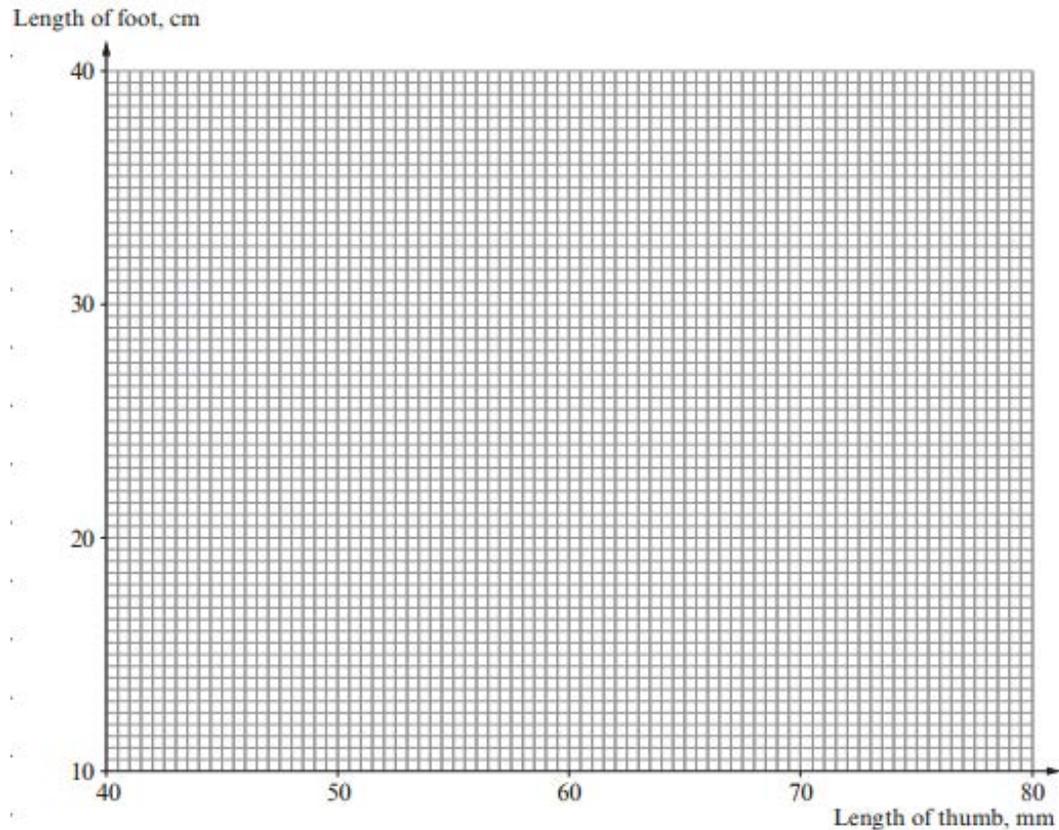
(ii) Draw a line of best fit on your scatter diagram. [2]

(c) State the type of correlation shown in your scatter diagram. [1]

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(d) Give a possible reason why the graph was drawn with neither scale starting at zero. [1]

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Frequency Polygons / Frequency Diagrams – In your own words explain the difference between the two.

#TopTip Frequency Diagram – Bar graph no gaps

#TopTip Frequency Polygon – Join up the mid-points

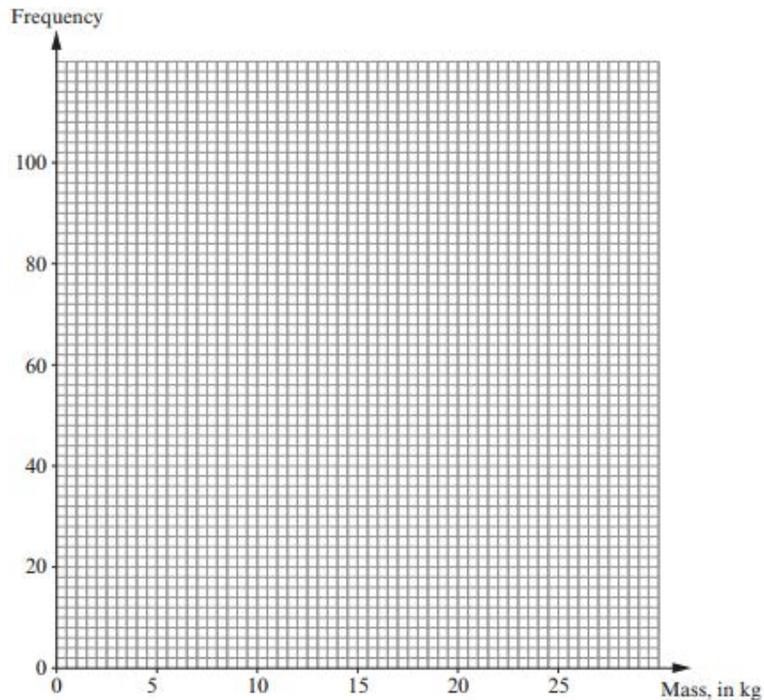
Frequency Diagram

The marks obtained in a test by 160 students were recorded.

The table shows a grouped frequency distribution of the results

Mass, x kg	$0 < x \leq 5$	$5 < x \leq 10$	$10 < x \leq 15$	$15 < x \leq 20$	$20 < x \leq 25$
Frequency	6	20	70	88	16

On the graph paper below, draw a grouped frequency diagram to show this data [2]

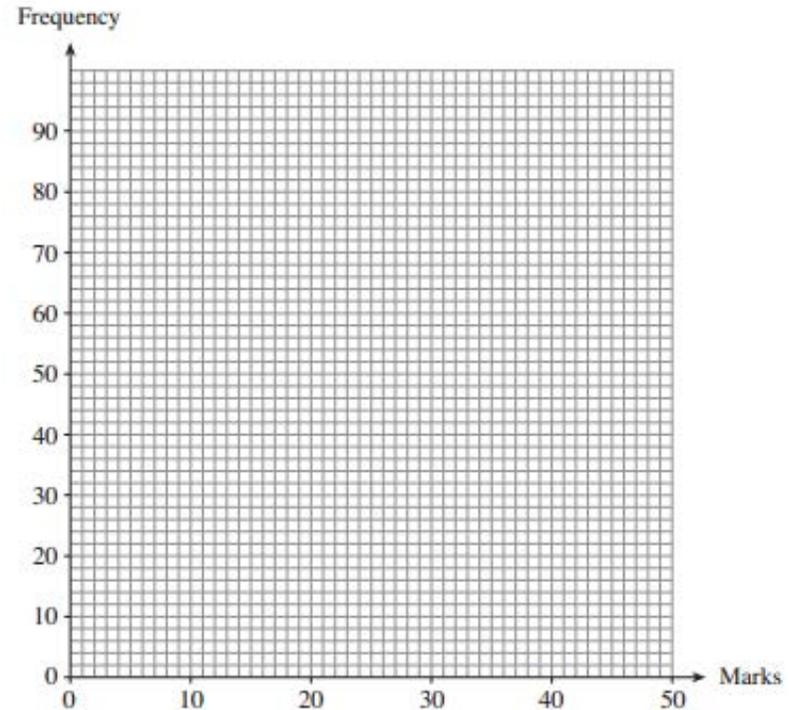


Frequency Polygon

The total mass of tomatoes, in kg, produced by each of 200 plants in a greenhouse was measured. The table shows the grouped frequency distribution for the total mass of tomatoes on each of these 200 plants

Mark	1 to 10	11 to 20	21 to 30	31 to 40	41 to 50
Frequency	16	50	76	10	8

On the graph paper below, draw a frequency polygon [2]



Conversion Graphs — In your own words explain how to construct a conversion graph

#TopTip STRAIGHT LINE GRAPH

At sea, the distance travelled by ships is measured in nautical miles rather than miles. The table shows the number of miles and the number of nautical miles for each of three distances.

Miles	8	16	23
Nautical miles	7	14	20

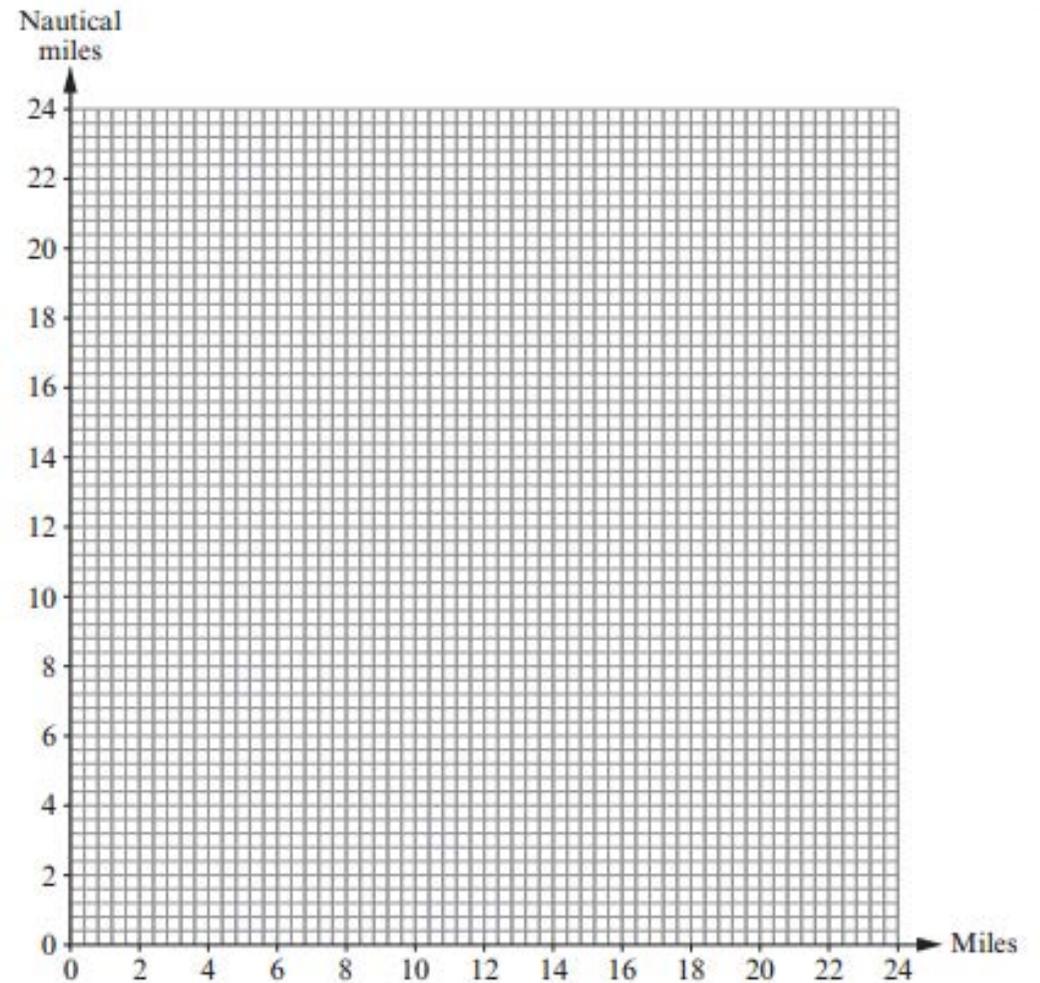
Use the data in the table to draw a conversion graph between miles and nautical miles. [2]

(b) Find an estimate, in miles, for 50 nautical miles [2]

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Travel Graphs – In your own words explain what you need to look out for.

#TopTip Check you know what the scale is.
Find how many minutes 1 small square is worth

Speed = $\frac{\text{Distance}}{\text{Time}}$ (Time must be in decimal time e.g. 1hr 30 mins = 1.5 2hr 15min = 2.25)

Dennis walked the 1 km from his home to the bus stop. This took him 20 minutes. Dennis had to wait at the bus stop for 10 minutes before the bus arrived. The bus travelled at a constant speed for half an hour until it reached Dennis' school, a distance of 10 km from the bus stop.

(a) On the graph paper below, draw a graph of Dennis' journey from home to school. [4]

(b) What was the speed of the bus in km/h? [2]

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(c) After 50 minutes, how far was Dennis from the school? [1]

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