

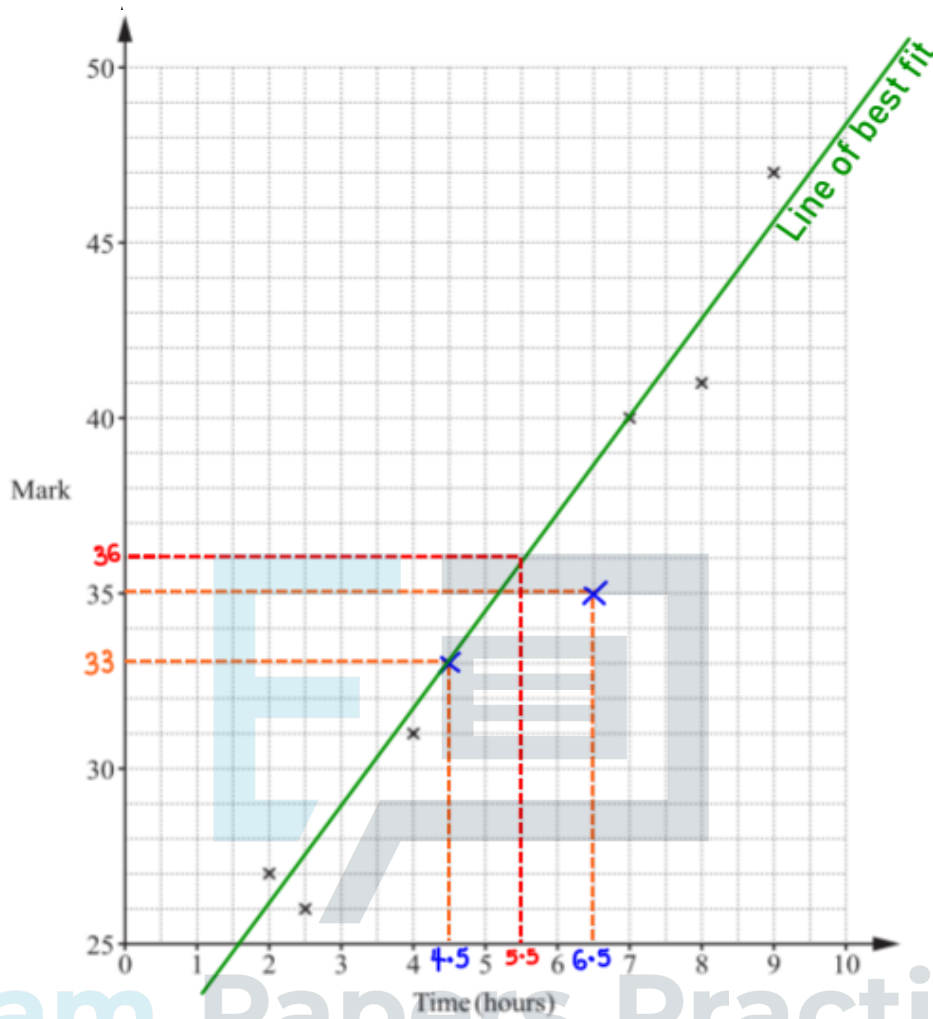


EXAM PAPERS PRACTICE

Displaying Data

Model Answer

Six students revise for a test.
The scatter diagram shows the time, in hours, each student spent revising and their mark in the test.



(a) The data for two more students is shown in the table.

| | | |
|--------------|-----|-----|
| Time (hours) | 4.5 | 6.5 |
| Mark | 33 | 35 |

Plot these two points on the scatter diagram.

[1]

(b) What type of correlation is shown on the scatter diagram?

[1]

positive

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

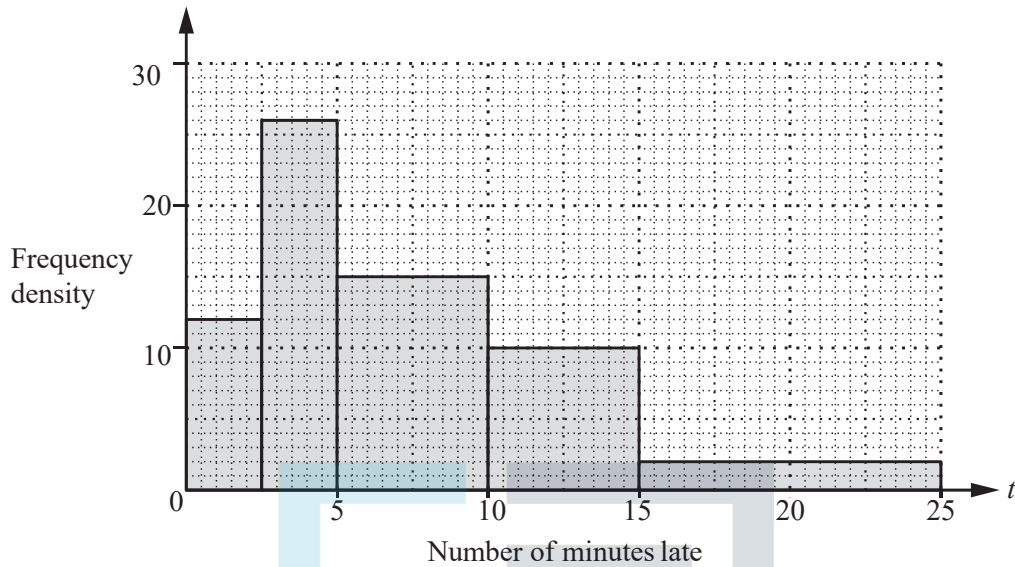
[1]

(d) Another student spent 5.5 hours revising.

Estimate a mark for this student. **36**

[1]

Deborah records the number of minutes late, t , for trains arriving at a station.
The histogram shows this information.



(a) Find the number of trains that Deborah recorded. [2]

you can count these from the graph

0 - 2.5 minutes: 12

2.5 - 5 minutes: 26

5 - 10 minutes: 15

10 - 15 minutes: 10

15 - 25 minutes: 2

the number of trains that Deborah recorded: $12 + 26 + 15 + 10 + 2 = 65$. [2]

(b) Calculate the percentage of the trains recorded that arrived more than 10 minutes late.

$$(10 + 2) \div 65 \approx 0.1846 = 18.46\%$$



Raj measures the height, h cm, of 70 plants.
The table shows the information.

| Height (h cm) | $10 < h \leq 20$ | $20 < h \leq 40$ | $40 < h \leq 50$ | $50 < h \leq 60$ | $60 < h \leq 90$ |
|------------------|------------------|------------------|------------------|------------------|------------------|
| Frequency | 7 | 15 | 27 | 13 | 8 |

Calculate an estimate of the mean height of the plants.

The total is $7 + 15 + 27 + 13 + 8 = 70$

The average is

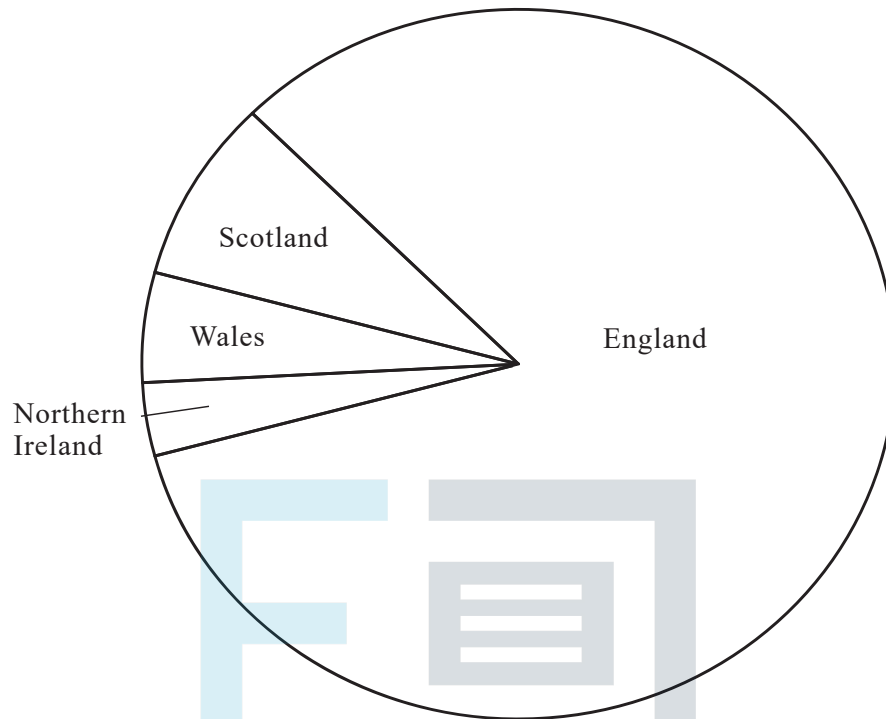
$$\frac{15 \times 7 + 30 \times 15 + 45 \times 27 + 55 \times 13 + 75 \times 8}{70} = 44$$

[4]



Exam Papers Practice

The populations of the four countries of the United Kingdom, in the year 2000, are shown on the pie chart below.



Taking measurements from the pie chart, complete the table.

| Country | Population (millions) |
|------------------|-----------------------|
| England | 49.77 |
| Scotland | 6.32 |
| Wales | 3.95 |
| Northern Ireland | 2 |

[3]

The table shows some information about the mass, m grams, of 200 bananas.

| | | | | |
|------------------------------------|-------------------|--------------------|--------------------|--------------------|
| Mass (m grams) | $90 < m \leq 110$ | $110 < m \leq 120$ | $120 < m \leq 125$ | $125 < m \leq 140$ |
| Frequency | 40 | 70 | 60 | 30 |
| Height of column in histogram (cm) | 8 | 14 | 6 | 6 |

Complete the table.

[4]



Question 6 Exam Papers Practice

The four sector angles in a pie chart are $2x^\circ$, $3x^\circ$, $4x^\circ$ and 90° .

Find the value of x .

[2]

$$2x^\circ + 3x^\circ + 4x^\circ + 90^\circ = 360^\circ$$

$$9x = 270^\circ$$

$$x = 30^\circ$$

Michelle sells ice cream.

The table shows how many of the different flavours she sells in one hour.

| Flavour | Vanilla | Strawberry | Chocolate | Mango |
|-------------|---------|------------|-----------|-------|
| Number sold | 6 | 8 | 9 | 7 |

Michelle wants to show this information in a pie chart.

Calculate the sector angle for mango.

[2]

$$\begin{aligned}
 \text{Total sold} &= 6 + 8 + 9 + 7 \\
 &= 30 \\
 \text{Mango flavour} &= 7 \\
 \therefore \text{Sector angle} &= \frac{7}{30} \times 360^\circ \\
 &= 7 \times 12 \\
 &= 84^\circ
 \end{aligned}$$

Answer: 84°

Question 8

Bruce plays a game of golf.

His scores for each of the 18 holes are shown below.

2 3 4 5 4 6 2 3 4
 4 5 3 4 3 5 4 4 4

The information is to be shown in a pie chart.

Calculate the sector angle for the score of 4.

[2]

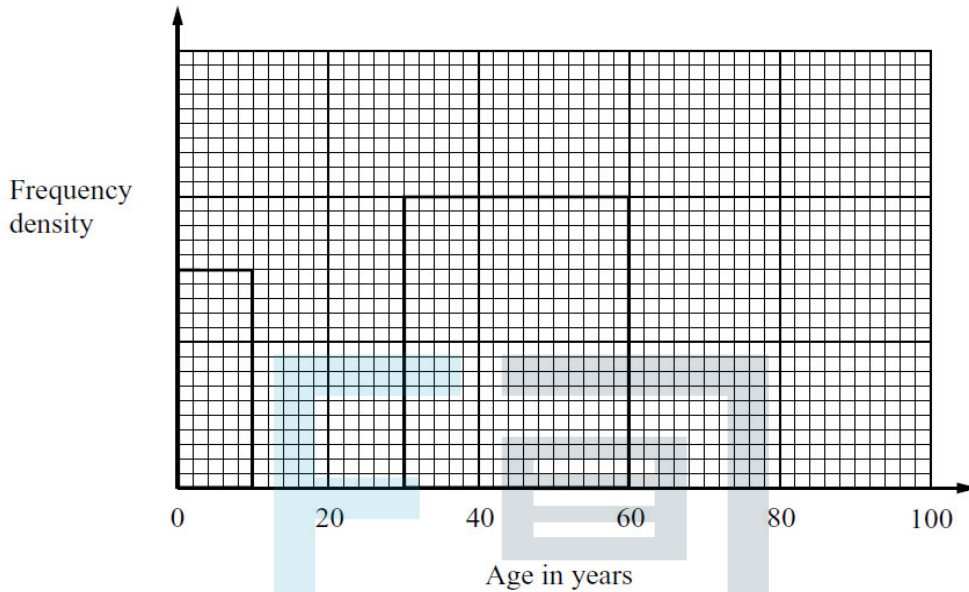
There are 8 times that got the score of 4 .

$$\frac{8}{18} = \frac{4}{9}$$

$$360^\circ \times \frac{4}{9} = 160^\circ$$

A doctor's patients are grouped by age, as shown in the table and the histogram below.

| | | | | |
|--------------------|-----------------|------------------|------------------|-------------------|
| Age (x years) | $0 \leq x < 10$ | $10 \leq x < 30$ | $30 \leq x < 60$ | $60 \leq x < 100$ |
| Number of patients | 300 | 600 | 1200 | 880 |



- (a) Complete the following:
 1 cm² represents **100** patients. [1]
- (b) Use the histogram to fill in the blank in the table. [1]
There are 12 one centimetre squares in the section $30 \leq x < 60$. [2]
which must then be multiplied by the answer to part (a)
- (c) Draw the missing two rectangles to complete the histogram.

Alternatively if frequency densities are found (frequency / class width) the first one is 30, which as shown is represented by 3cm of height. So every 10 of frequency density is represented by 10mm of height.

The second bar is $600/20 = 30$ so again 30mm high and the 4th bar is $880/40 = 22$ which is 22mm high. The 3rd bar has height 40mm so frequency = frequency density \times class width which is 40×30 .