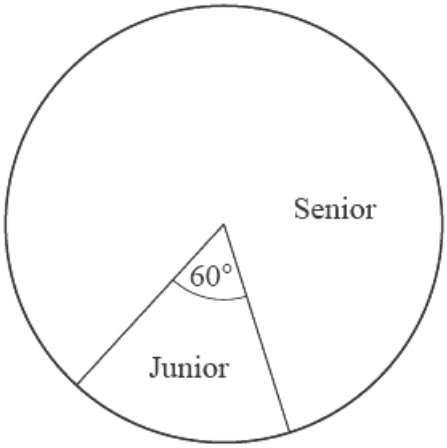
Statistics – 2024 O Level Math D 4024

1. June/2024/Paper_ 4024/11/No.13



The pie chart shows the proportion of junior members and senior members at a gym.
There are 120 more senior members than junior members.

Calculate the total number of junior and senior members at the gym.

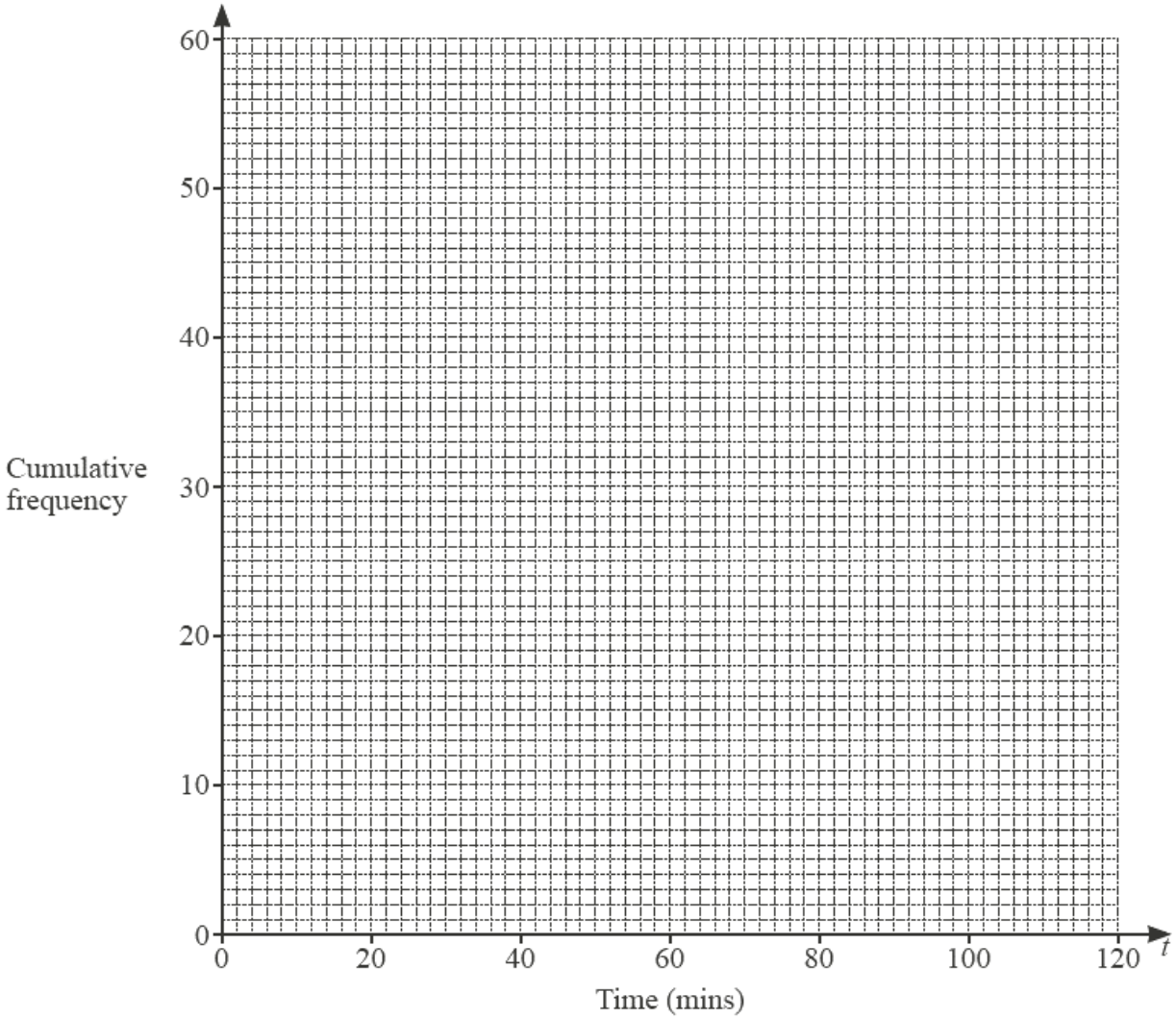
..... [2]

2. June/2024/Paper_ 4024/11/No.17

The table shows the time that each of 60 children spends in a play area.

Time (t mins)	$0 < t \leqslant 10$	$10 < t \leqslant 40$	$40 < t \leqslant 60$	$60 < t \leqslant 90$	$90 < t \leqslant 120$
Frequency	4	7	8	24	17

(a) Draw a cumulative frequency diagram to show this information.



[3]

(b) Use your diagram to estimate

(i) the median

..... minutes [1]

(ii) the interquartile range

..... minutes [2]

(iii) the number of children who spend more than 80 minutes in the play area.

..... [2]

3. June/2024/Paper_ 4024/12/No.3

Olga writes a list of five numbers.

The median of the numbers is 12.
The mode of the numbers is 11.
The range of the numbers is 10.

The sum of the numbers is 75.

Find the five numbers in Olga's list.

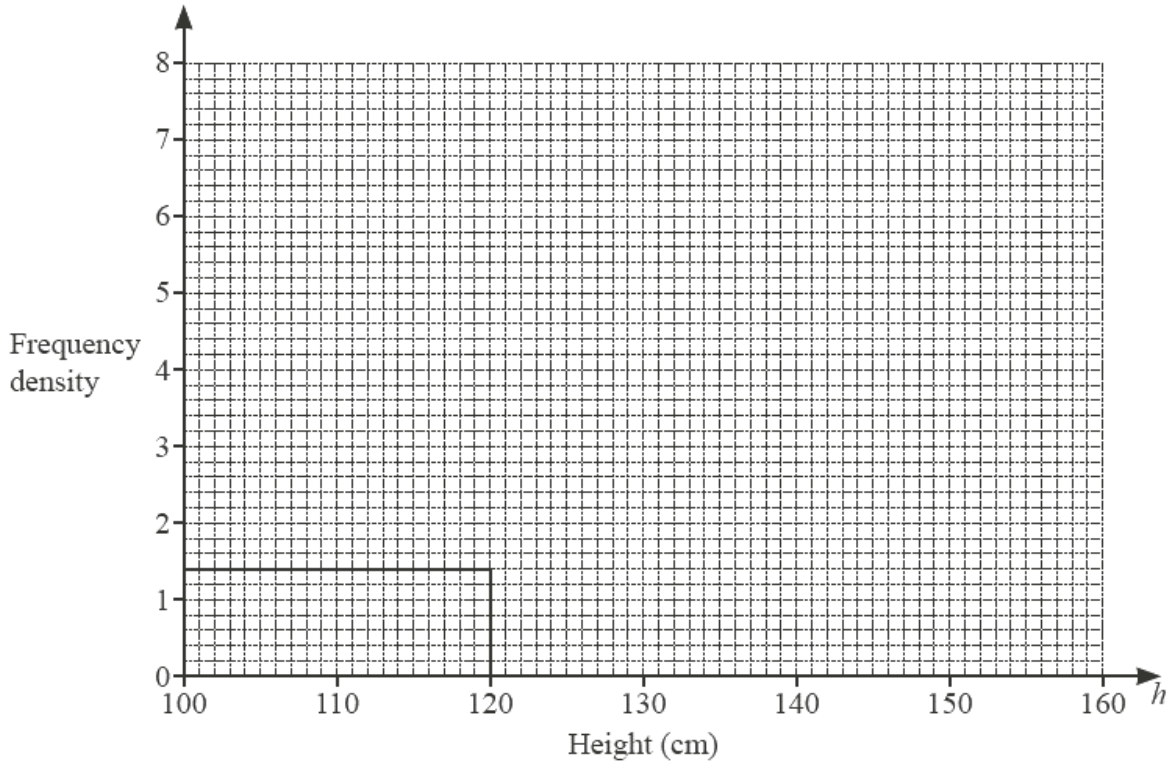
..... , ... , ... , ... , ... [3]

4. June/2024/Paper_ 4024/12/No.21

The table shows the heights of 180 sunflowers.

Height (h cm)	$100 < h \leqslant 120$	$120 < h \leqslant 140$	$140 < h \leqslant 150$	$150 < h \leqslant 160$
Frequency	28	60	68	24

Complete the histogram.



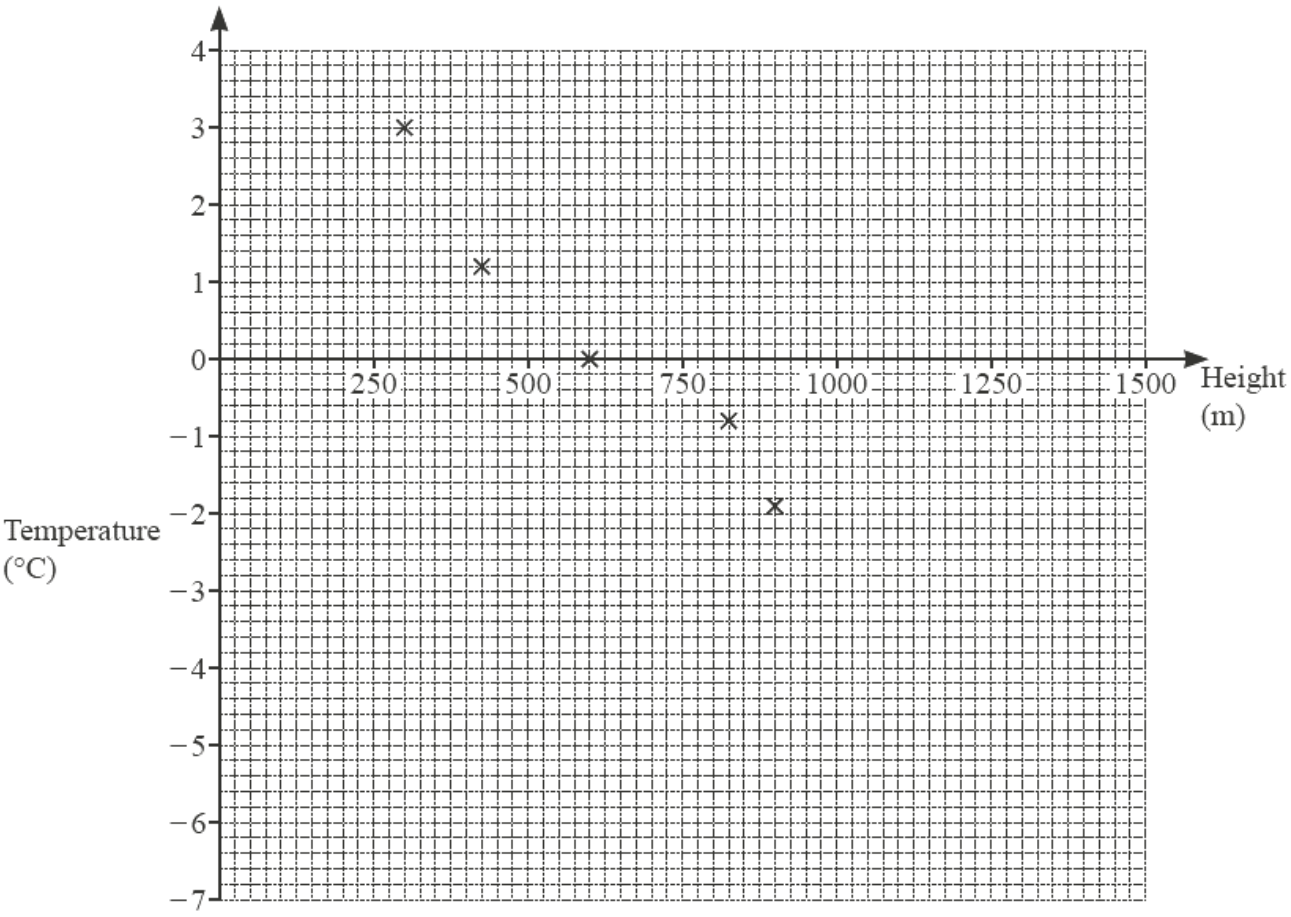
[3]

5. June/2024/Paper_ 4024/21/No.2

(a) The temperature at midday was recorded at ten different heights on a mountain.
The results are shown in the table.

Height (m)	300	825	600	425	900	100	1250	1450	1125	1350
Temperature (°C)	3.0	−0.8	0.0	1.2	−1.9	3.5	−4.6	−6.4	−4.0	−3.8

(i) Complete the scatter diagram.
The first five points have been plotted for you.



[2]

(ii) Describe the type of correlation shown in the scatter diagram.

..... [1]

(iii) Draw a line of best fit on the scatter diagram. [1]

(iv) Another reading is taken at a height of 1000 m.

Use your line of best fit to estimate the temperature at this height.

..... °C [1]

(b) The table summarises the times taken by 80 adults to climb the mountain.

Time taken (h hours)	$5.5 < h \leqslant 6.5$	$6.5 < h \leqslant 7.5$	$7.5 < h \leqslant 8$	$8 < h \leqslant 8.5$	$8.5 < h \leqslant 10.5$
Frequency	8	15	20	23	14

(i) Calculate an estimate of the mean time.

..... hours [3]

(ii) A histogram is drawn to show this information.
The height of the bar representing $5.5 < h \leqslant 6.5$ is 8 mm.

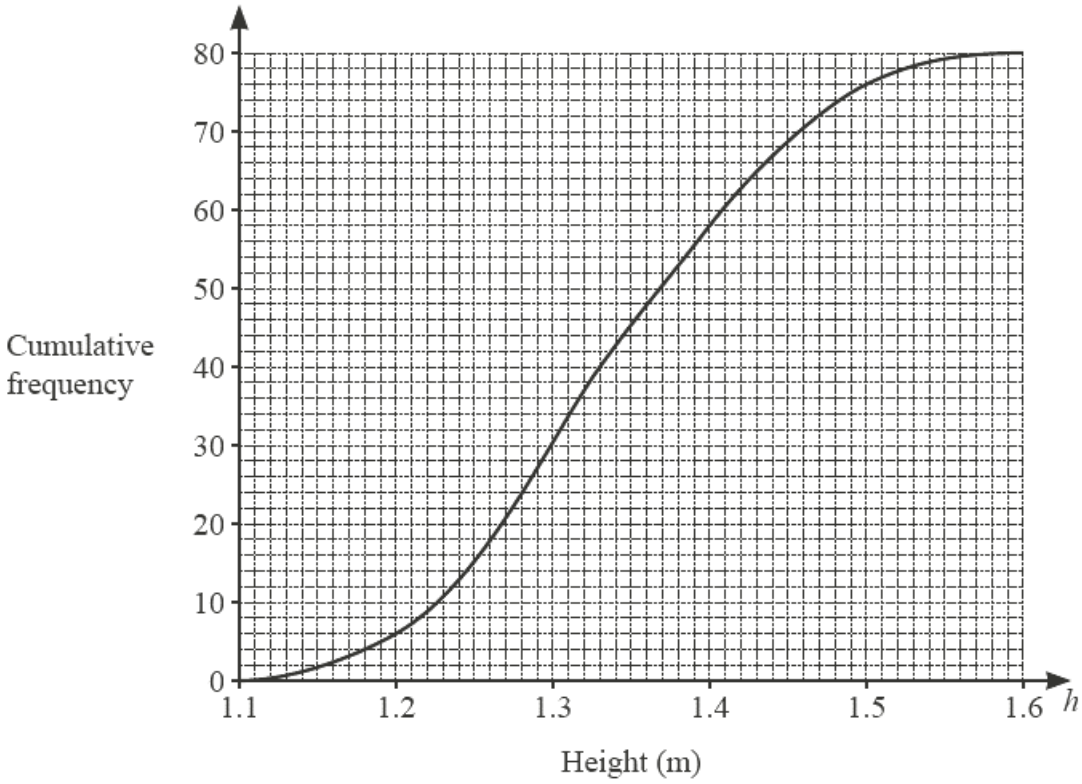
Calculate the height of the bar representing $8 < h \leqslant 8.5$.

..... mm [1]

6. June/2024/Paper_ 4024/22/No.9

A shop sells two varieties of apple tree.

(a) The cumulative frequency diagram shows the heights, in metres, of 80 Variety A trees.



(i) Use the diagram to estimate

(a) the median

..... m [1]

(b) the 30th percentile.

..... m [2]

(ii) Trees with a height greater than y m are graded Class I.
$\frac{2}{5}$ of the 80 trees are graded Class I.

Find the value of y.

$y =$ ..... [2]

(iii) Complete the frequency table for the heights of the Variety A trees.

Height (h m)	$1.1 < h \leqslant 1.2$	$1.2 < h \leqslant 1.3$	$1.3 < h \leqslant 1.4$	$1.4 < h \leqslant 1.5$	$1.5 < h \leqslant 1.6$
Frequency	6	24			

[2]

(b) The frequency table shows the heights of 50 Variety B trees.

Height (h m)	$1.5 < h \leqslant 1.7$	$1.7 < h \leqslant 1.8$	$1.8 < h \leqslant 1.9$	$1.9 < h \leqslant 2.3$
Frequency	p	15	17	q

Using the midpoints of the intervals, the estimated mean height of these Variety B trees is 1.81 m.

Calculate the value of p and the value of q.

$p =$ .....

$q =$ ..... [6]