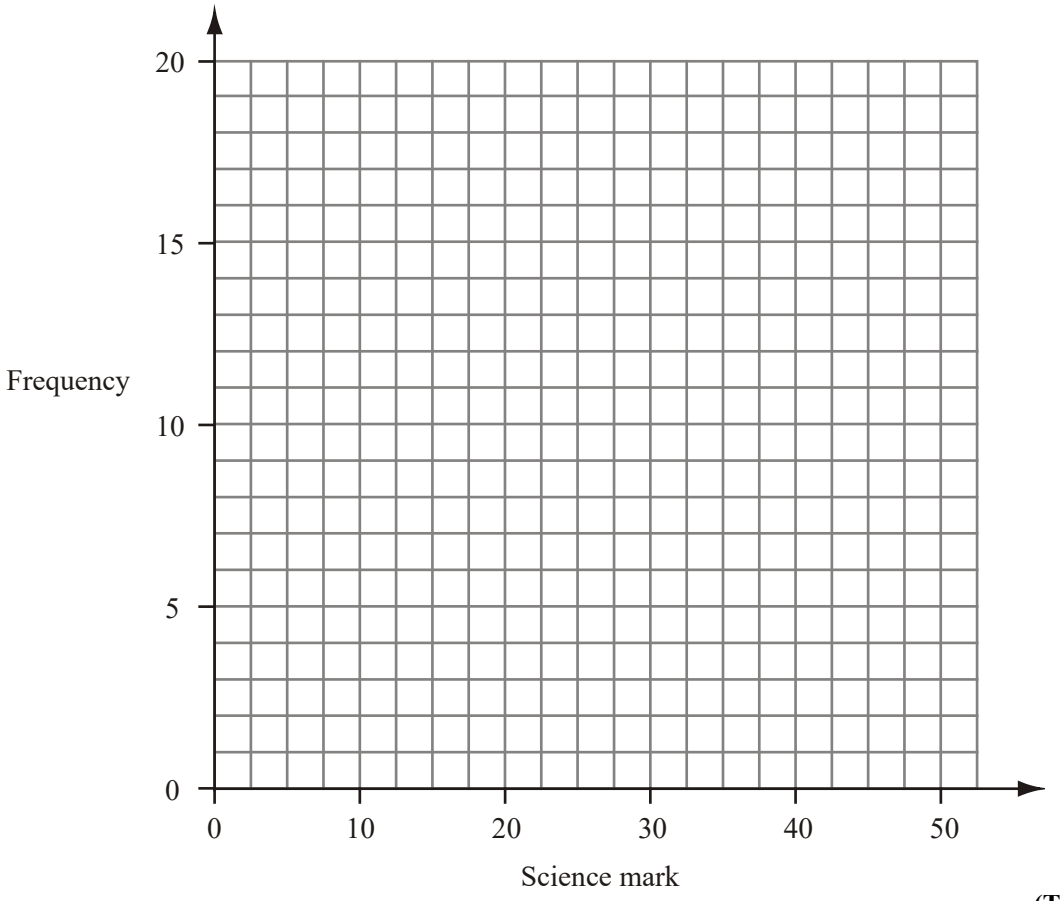
1. 60 students take a science test.
The test is marked out of 50.

This table shows information about the students' marks.

Science mark	0–10	11–20	21–30	31–40	41–50
Frequency	4	13	17	19	7

On the grid, draw a frequency polygon to show this information.

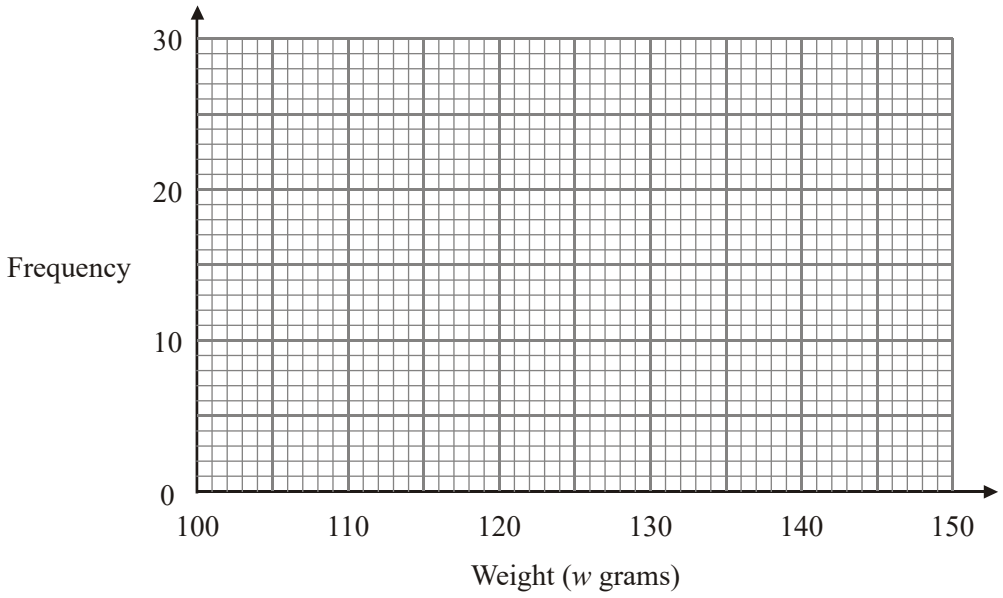


(Total 2 marks)

2. The table shows some information about the weights (w grams) of 60 apples.

Weight (w grams)	**Frequency**
$100 \leq w < 110$	5
$110 \leq w < 120$	9
$120 \leq w < 130$	14
$130 \leq w < 140$	24
$140 \leq w < 150$	8

Draw a frequency polygon to show this information.



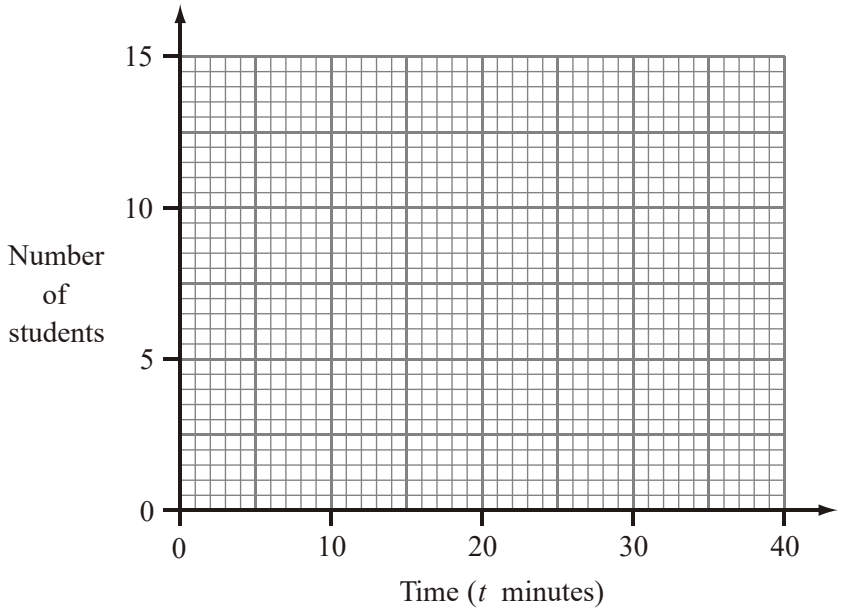
(Total 2 marks)

3. 30 students ran a cross-country race.
Each student's time was recorded.

The table shows information about these times.

Time (t minutes)	Frequency
$10 \leq t < 14$	2
$14 \leq t < 18$	5
$18 \leq t < 22$	12
$22 \leq t < 26$	8
$26 \leq t < 30$	3

On the grid, draw a frequency polygon to show this information.



(Total 2 marks)

01. Polygon 2

B2 Complete polygon (ignore histograms and any lines below a mark of 5 or above a mark of 45), but award B1 if there is a line joining the first to the last point.
(B1 One vertical or horizontal plotting error OR incorrect but consistent error in placing the midpoints horizontally OR correct plotting but not joined) .
Plotting tolerance :1/2 square; points to be joined by lines (ruled or hand drawn, but not curves).

[2]

02. Points plotted at

(105,5), (115,9), (125,14), (135,24), (145,8)

and joined with line segments 2

B2 cao for plotting correct points ± 1 sq and joining with line segments

(B1 for points plotted correctly at midpoints of intervals
or joining points with line segments at the correct heights and consistent within the class interval (including end values)
or correct frequency polygon with one point incorrect)
or correct frequency polygon with first and last point joined

NB Ignore any histogram drawn and any part of frequency polygon outside range of first and last points plotted

[2]

03. (12, 2), (16, 5), (20, 12), (24, 8) and (28, 3) plotted and joined with line segments 2

B2 for a correct frequency polygon

(B1 for 4 correct points plotted (± 1 sq) and joined
or 5 correct points (± 1 sq) not joined
or correct polygon translated within 0.8 cm left or right)

Condone lines < 12 min or > 28 min
or "(12,2)" to "(28,3)" joined.
Ignore histograms drawn

[2]

01. Foundation

There were many errors in this question, resulting in few candidates gaining full marks. Errors included plotting points at the end values of the class interval, rather than the midpoint, plotting points and not joining them, or attempts to join them with a curve. Many also joined the first to the last point with a straight line, which was inappropriate for a frequency polygon. It was clear some candidates were totally unfamiliar with frequency polygons.

Higher

Frequency polygons have made a comeback after a few years' absence. This might go some way to explain the indifferent response. Many candidates plotted the points at the upper end of the interval rather than the middle. There were many cases of inconsistent plotting where not enough care had been taken in the positioning of the points. Commonly, candidates joined the first point directly to the last point to produce a pentagon.

A successful teaching approach adopted by many centres is to draw essentially a histogram based on the (almost) equal class intervals and mark then join the midpoints of the top of the bars.

02. Around half the candidates failed to score any marks on this question, generally for plotting the points not at the mid-intervals and then failing to join their points with straight lines. Around 30% scored one mark either for not joining their correct points with straight lines or joining them correctly but having the points at one of the boundaries of the given class intervals. Some plotted the points and then drew a line of best fit, clearly not knowing what a frequency polygon was.

03. Most candidates knew to draw the heights and join them with straight lines. However many did not draw them at the mid-interval values, thereby losing a mark. Those who did not know what a frequency polygon was drew a bar chart instead which scored no marks. Others plotted the points but did not join them. Where these points were also a translation of the correct points, it was not possible to score any marks. Over 44% of candidates failed to score on this question with over 35% scoring both marks.