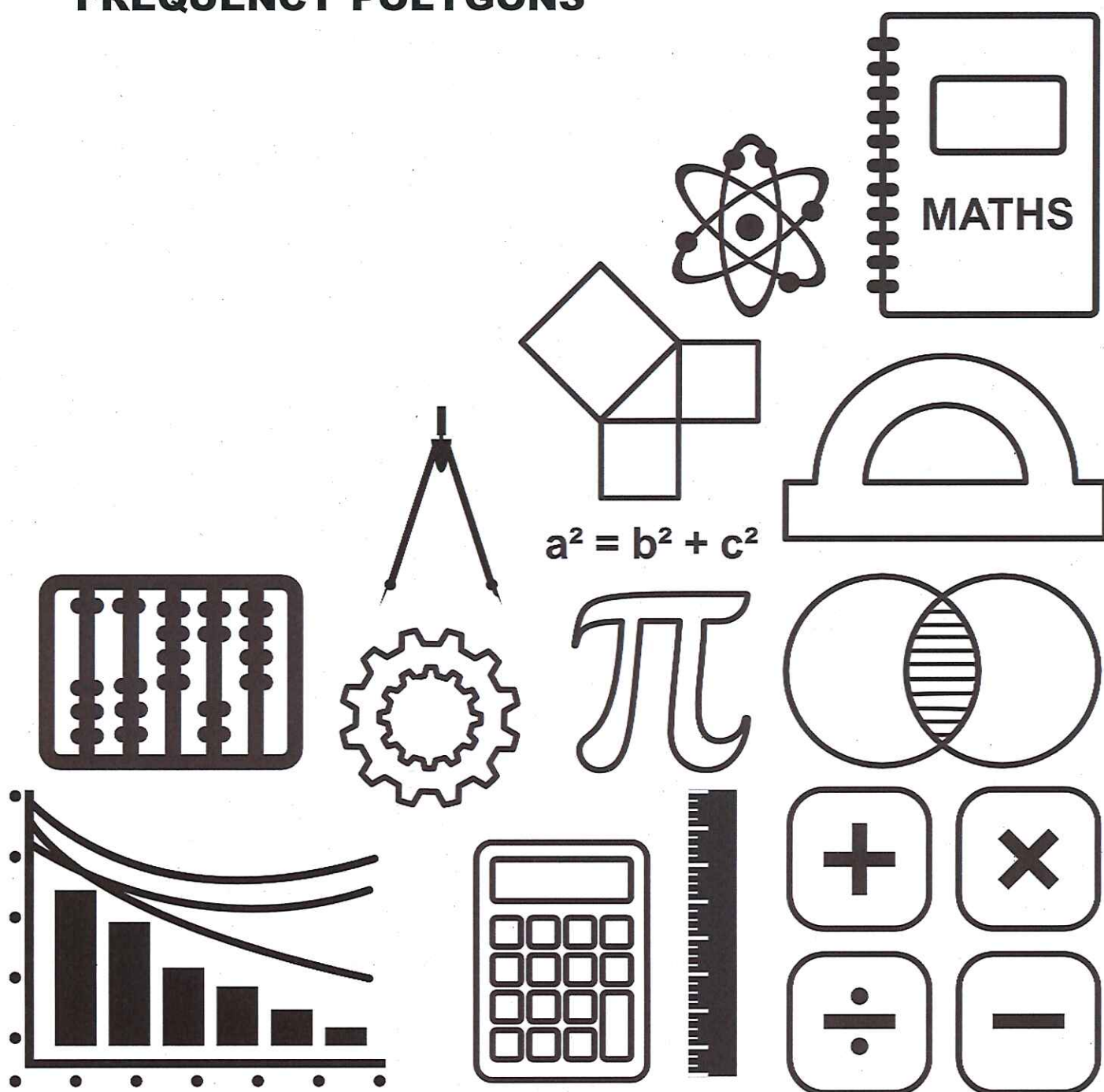


MATHSDIY

GCSE TOPIC BOOKLET FREQUENCY POLYGONS

SOLUTIONS

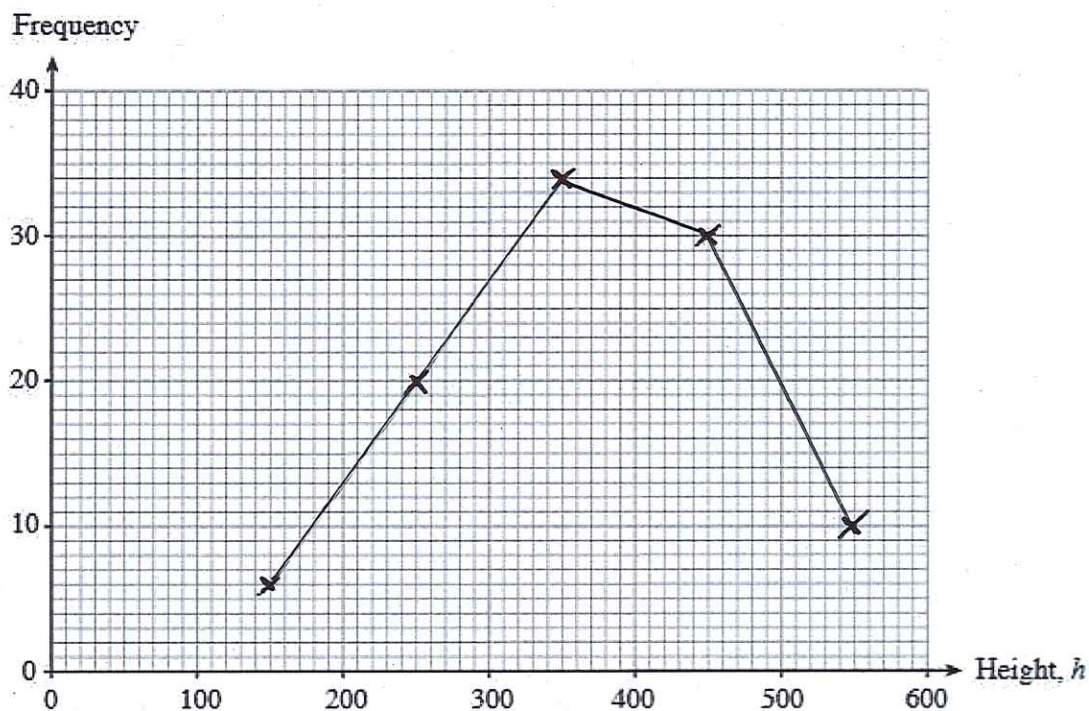


1. The heights of 100 trees were measured. The table below shows a grouped frequency distribution of the results.

Midpoint	150	250	350	450	550
Height, h	$100 < h \leq 200$	$200 < h \leq 300$	$300 < h \leq 400$	$400 < h \leq 500$	$500 < h \leq 600$
Frequency	6	20	34	30	10

On the graph paper below, draw a frequency polygon to show this data.

[2]

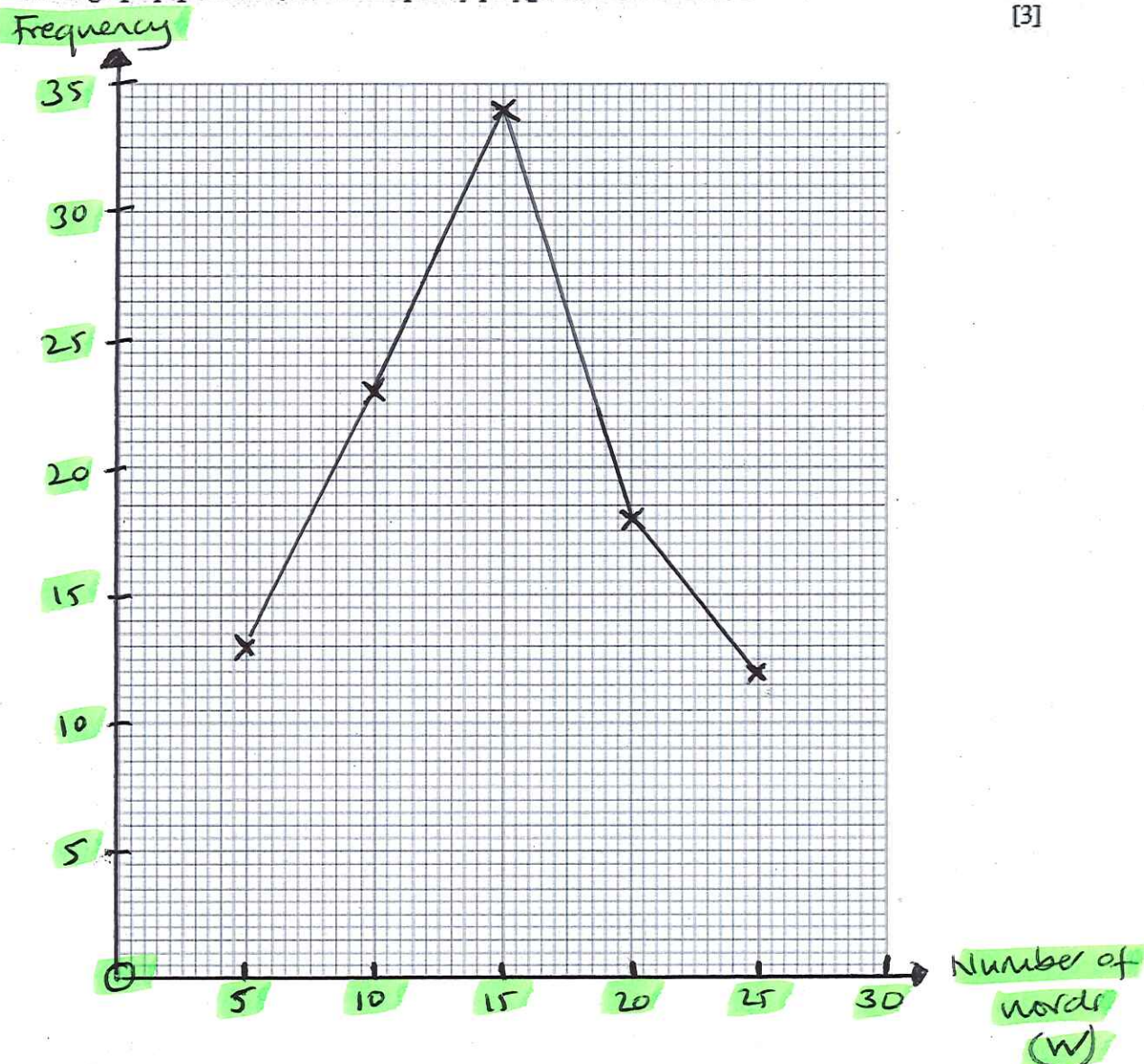


2. The number of words in each of 100 sentences in a book was counted. The table shows a grouped frequency distribution of the results.

Midpoint	5	10	15	20	25
Number of words (w)	$3 \leq w \leq 7$	$8 \leq w \leq 12$	$13 \leq w \leq 17$	$18 \leq w \leq 22$	$23 \leq w \leq 27$
Frequency	13	23	34	18	12

On the graph paper below, draw a frequency polygon to show this data.

[3]

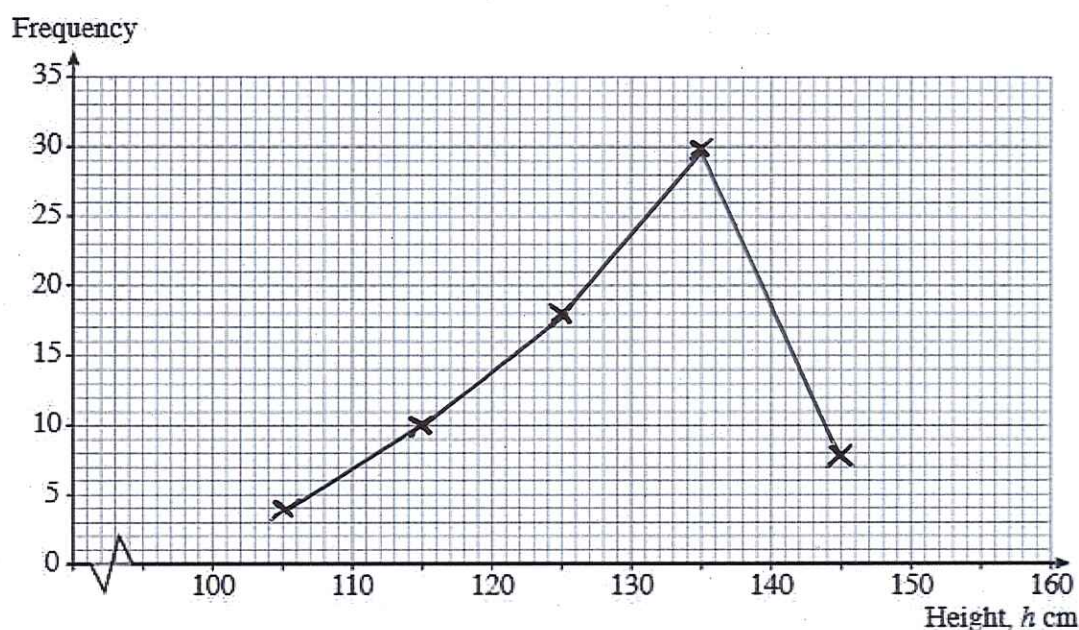


3. The heights of 70 children were measured in centimetres. The table below shows a grouped frequency distribution of the results.

Midpoint	105	115	125	135	145
Height, h cm	$100 < h \leq 110$	$110 < h \leq 120$	$120 < h \leq 130$	$130 < h \leq 140$	$140 < h \leq 150$
Frequency	4	10	18	30	8

- (a) On the graph paper below, draw a frequency polygon to show this data.

[2]



- (b) State which class interval contains the median.

halfway = $\frac{70}{2} = 35^{\text{th}}$

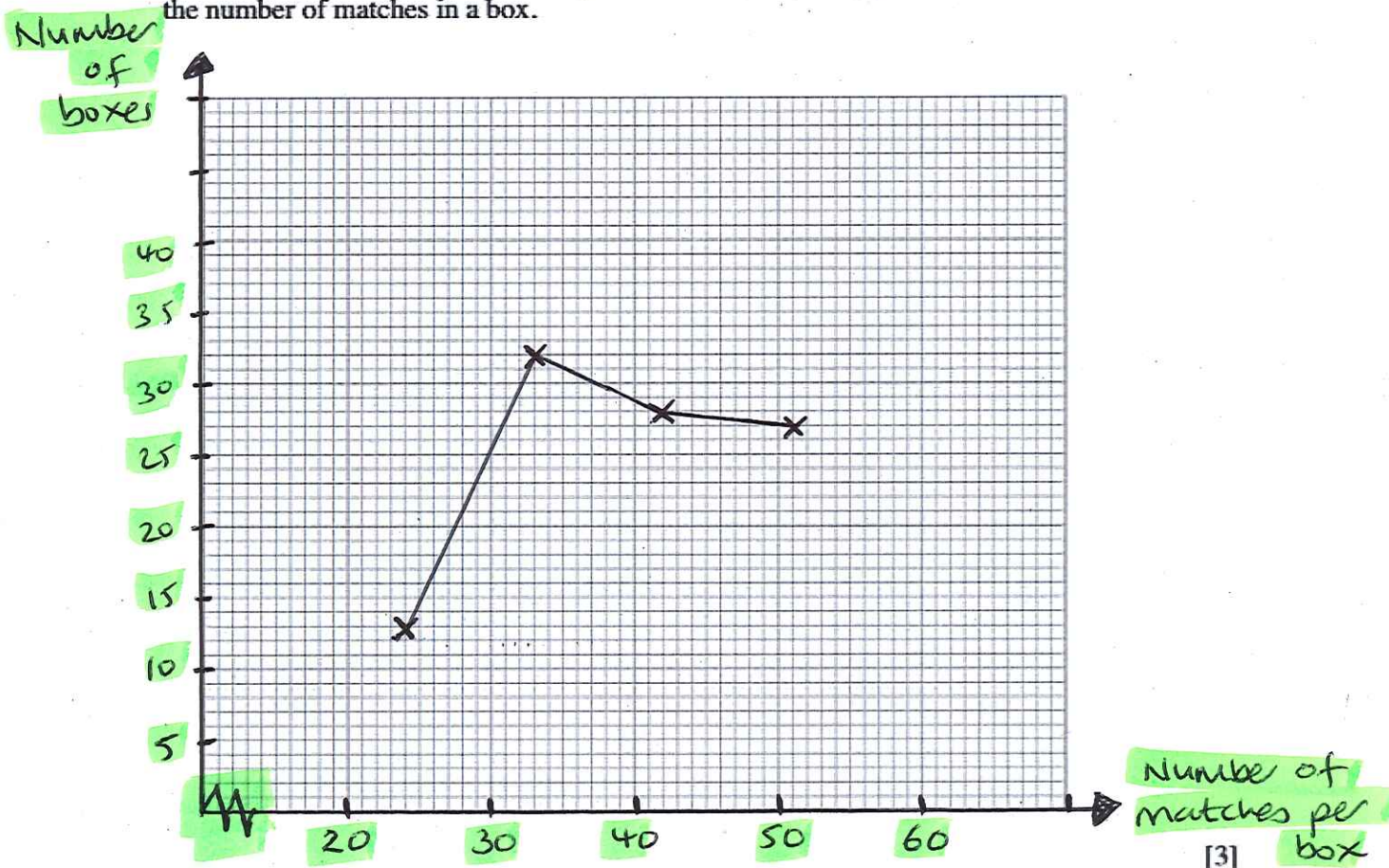
$130 < h \leq 140$

[1]

4. The number of matches per box in each of 100 boxes was counted. The table below shows a summary of the results.

Number of matches per box		Number of boxes
20 to 28	24	13
29 to 37	33	32
38 to 46	42	28
47 to 55	51	27

On the graph paper below, draw a grouped frequency polygon to show the distribution of the number of matches in a box.



Which is the modal group for the number of matches per box?

29-37

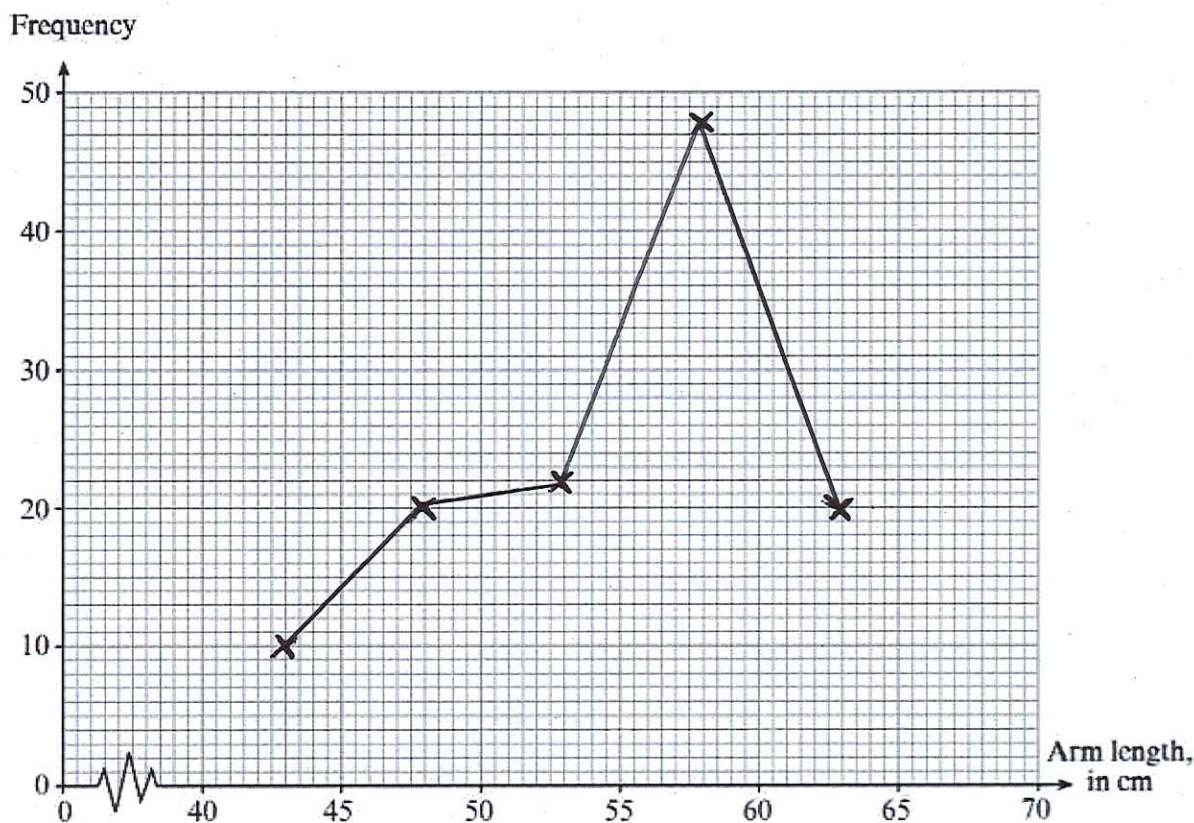
[1]

5. The arm lengths of 120 children were measured to the nearest cm. The table gives the grouped frequency distribution for the arm lengths of these 120 children.

	Midpoint	43	48	53	58	63
Arm length (cm)		41 - 45	46 - 50	51 - 55	56 - 60	61 - 65
Number of children		10	20	22	48	20

- (a) On the graph paper below, draw a frequency polygon to show this data.

[2]



- (b) State which class interval contains the median.

56-60

→ half way = $\frac{120}{2} = 60^{\text{th}}$

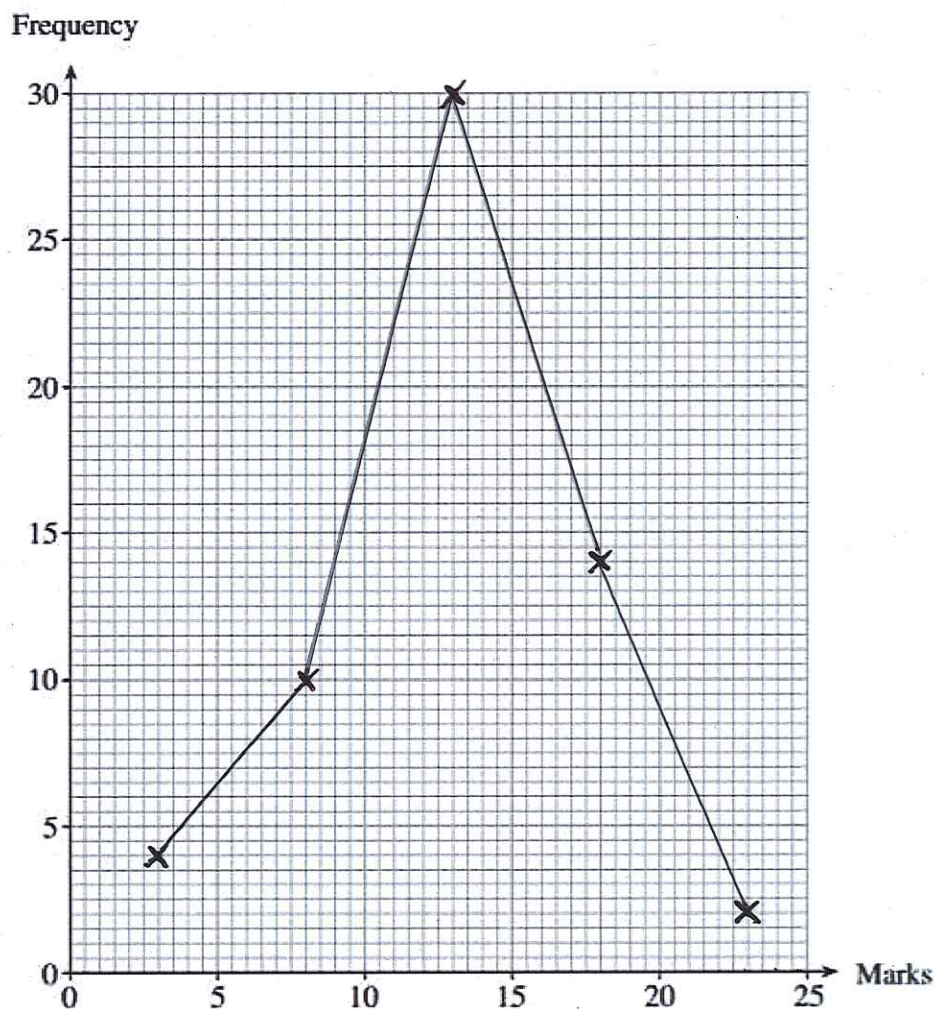
[1]

6. The marks obtained in a test taken by 60 children were recorded. The table shows a grouped frequency distribution of the results.

Midpoint	3	8	13	18	23
Mark	1 to 5	6 to 10	11 to 15	16 to 20	21 to 25
Frequency	4	10	30	14	2

On the graph paper below, draw a frequency polygon to show the data.

[2]



State which class interval contains the median. $\rightarrow \text{halfway} = \frac{60}{2} = 30^{\text{th}}$

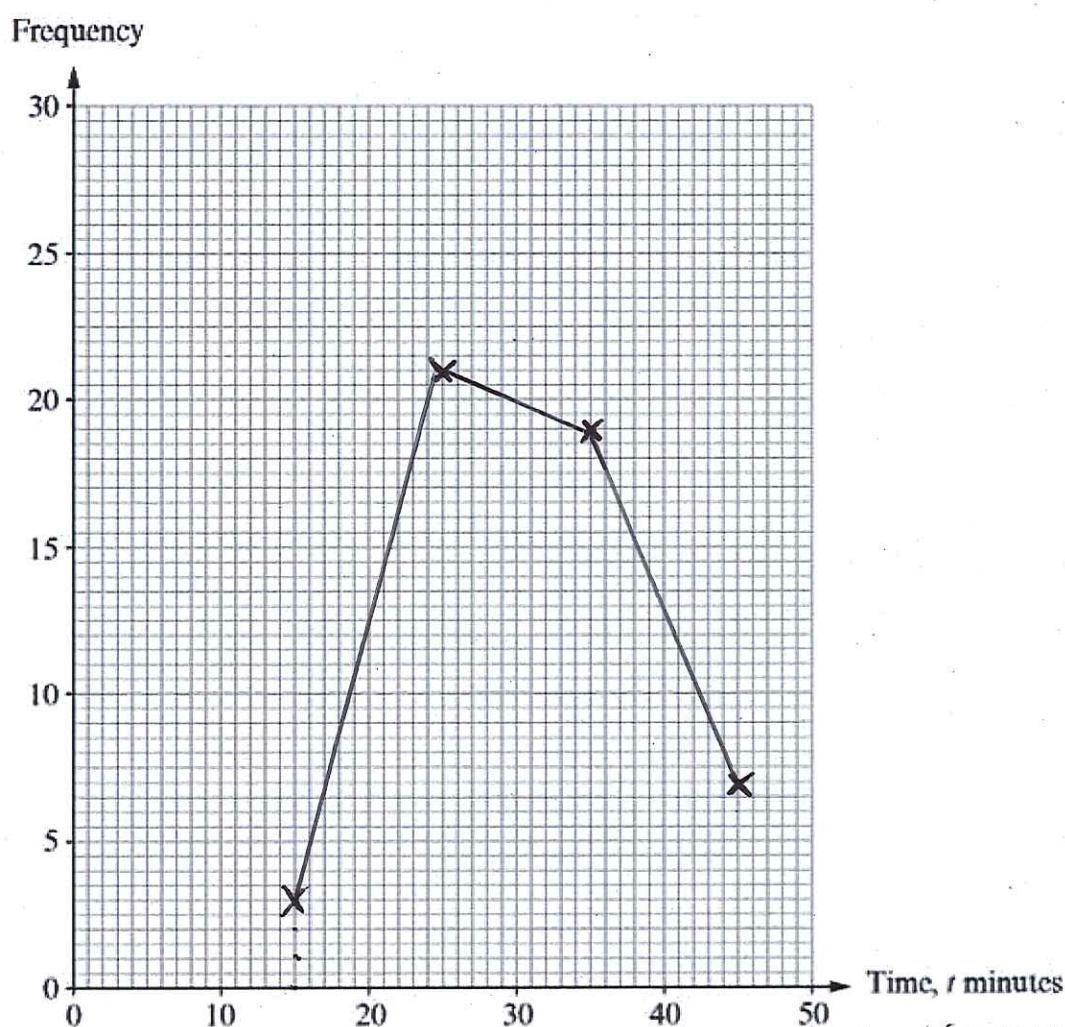
11 to 15

[1]

7. A timekeeper recorded the time taken by each of 50 runners to complete a race. The table below shows a summary of the results.

Time taken (t minutes)	Frequency
$10 < t \leq 20$	3
$20 < t \leq 30$	21
$30 < t \leq 40$	19
$40 < t \leq 50$	7

- (i) On the graph paper below, draw a frequency polygon for this data.



- (ii) Using the table, give the class interval which contains the median time taken.

$30 < t \leq 40$

halfway
 $= \frac{50}{2} = 25^{\text{th}}$

[3]