Bishops Online Tutoring

Education Consultancy

Edexcel GCSE Mathematics

FREQUENCY POLYGONS

Materials Required:

- Pen
- HB Pencil
- Ruler (in centimetres and millimetres)
- Protractor
- Compass

Instructions:

- Use a black ink pen to answer all questions
- Fill your name in the section below
- Answer the questions in the spaces provided
- Show your working out for all answers

Information:

- The marks allocated for each question are displayed within brackets – utilise this information to gauge the appropriate amount of time to dedicate to each question
- Questions marked with an asterisk (*) will assess your written communication; be careful of spelling, punctuation and grammar with these questions

Advice:

- Carefully read the question before attempting to answer it
- Be vary of time and try to answer every question
- If you have enough time in the end, go back and check your answers. A good way to check your answers is to retry the question with the hope of getting the same answer as before without looking at your working out from before

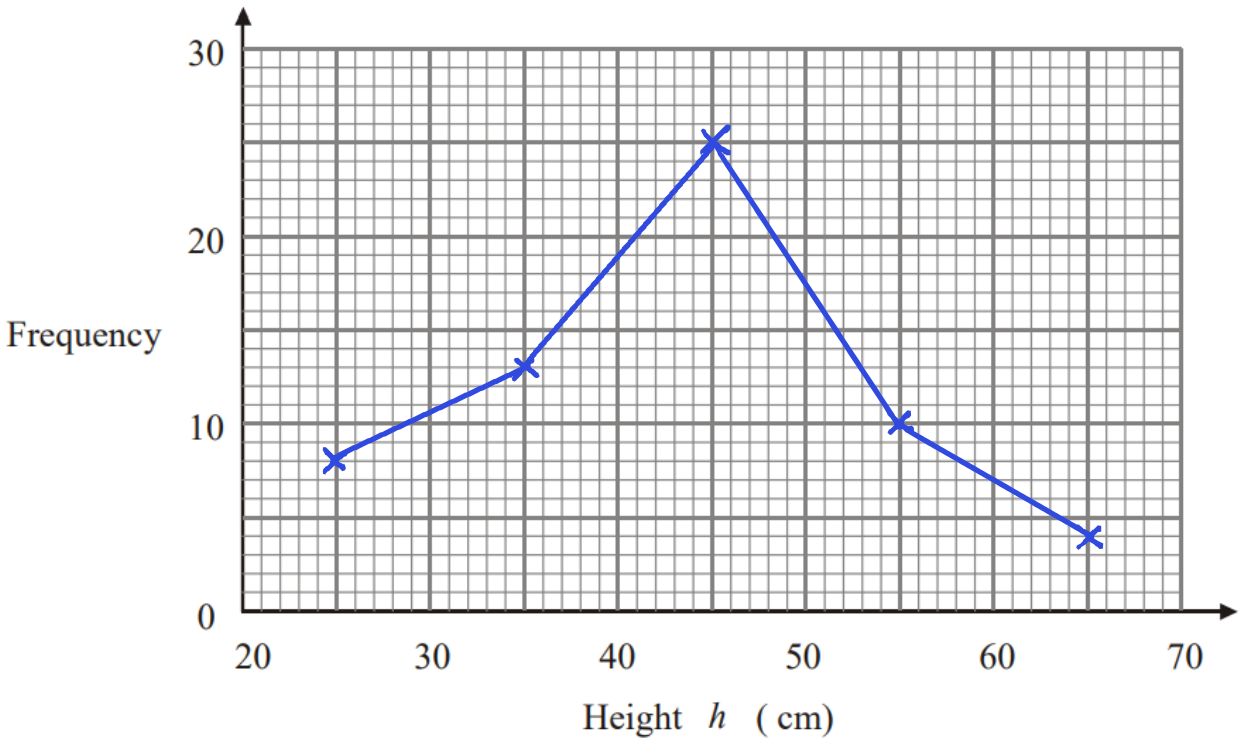
NO CALCULATOR ALLOWED

NAME:	

1. The table shows some information about the heights (h *cm*) of 60 plants.

Height (h cm)	Frequency
$20 < w \leq 30$	8
$30 < w \leq 40$	13
$40 < w \leq 50$	25
$50 < w \leq 60$	10
$60 < w \leq 70$	4

Draw a frequency polygon to show this information.

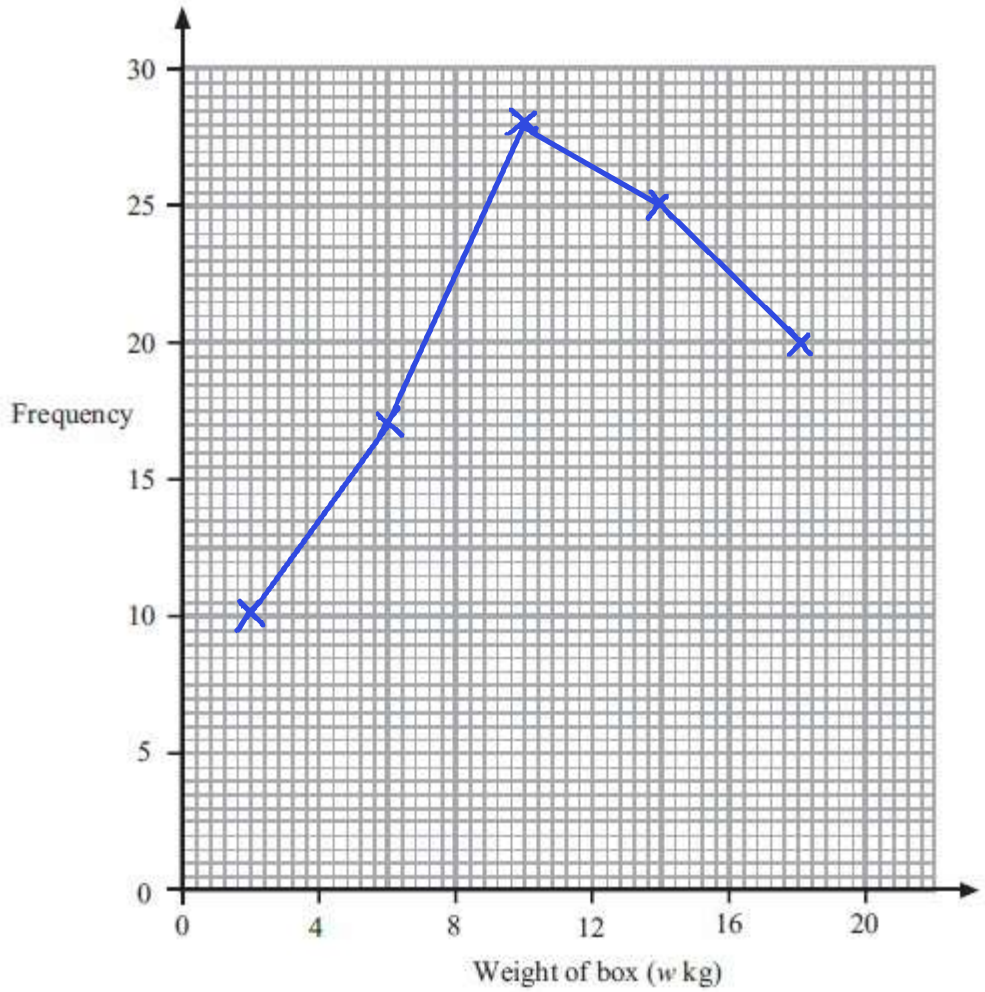


(4 marks)

2. The table shows some information about the weights, in kg, of 100 boxes.

Weight of box (w kg)	Frequency
$0 < w \leq 4$	10
$4 < w \leq 8$	17
$8 < w \leq 12$	28
$12 < w \leq 16$	25
$16 < w \leq 20$	20

Draw a frequency polygon to show this information.

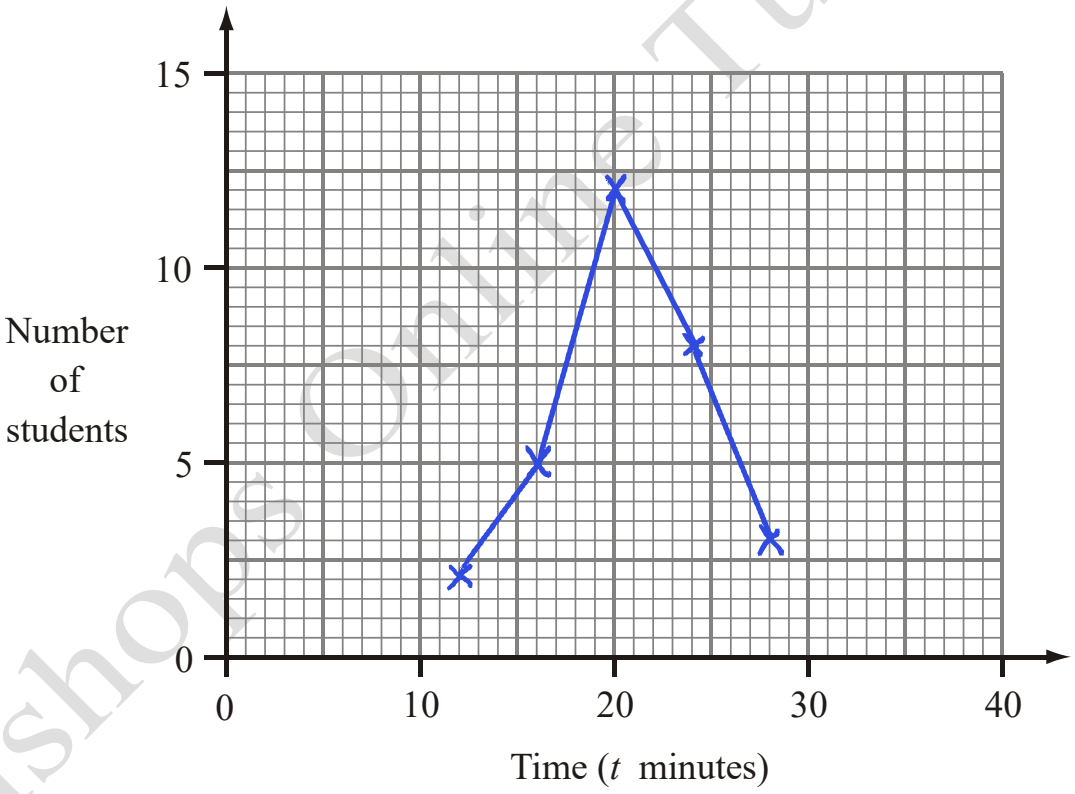


(4 marks)

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.

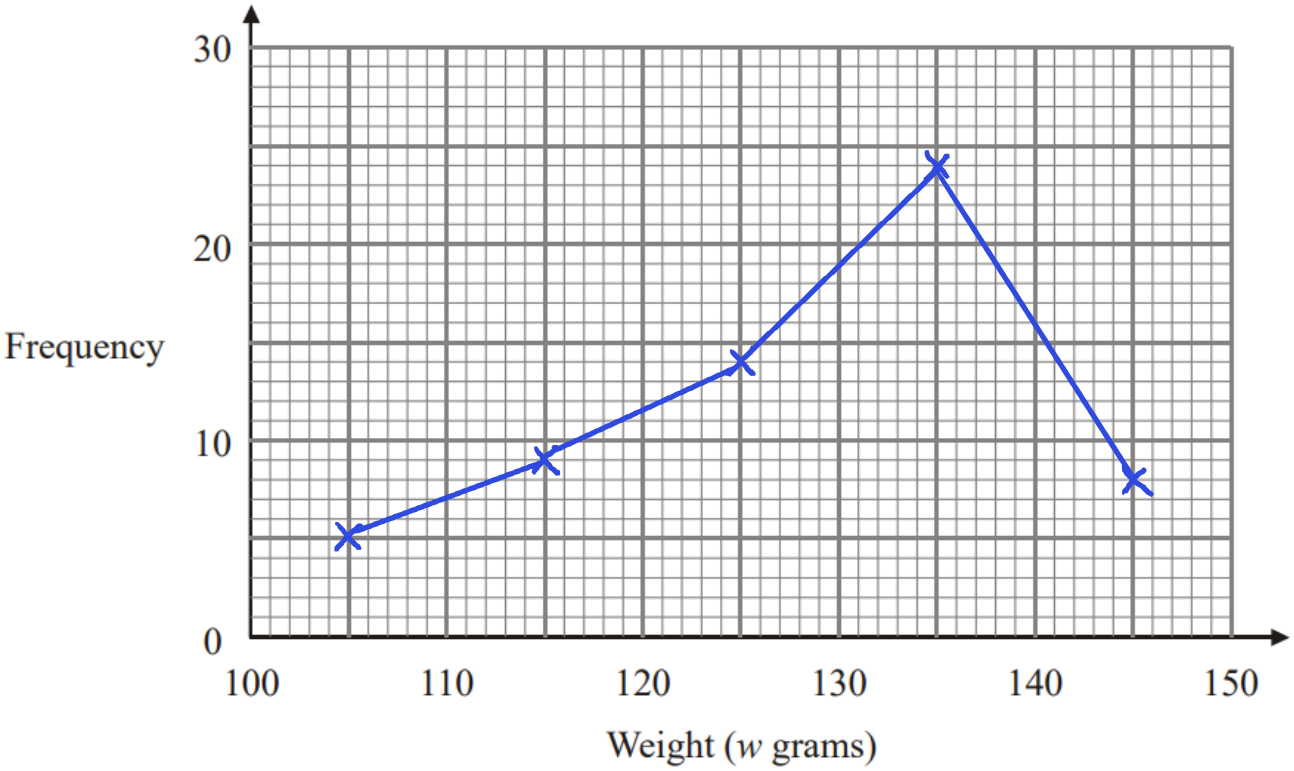


(4 marks)

4. 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.



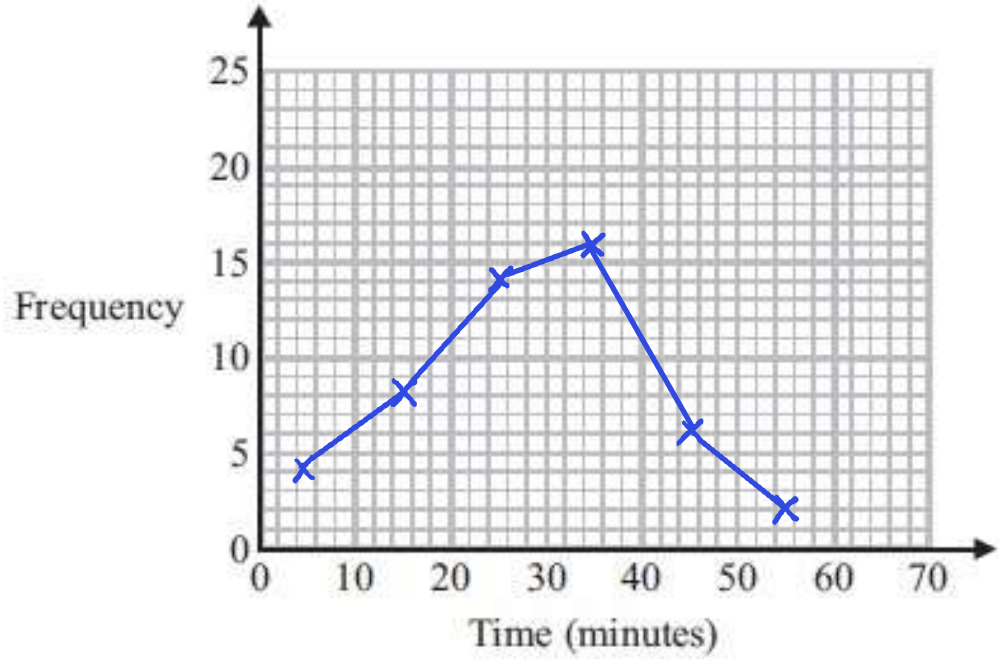
(4 marks)

5. The frequency table gives information about the times it took some office workers to get to the office one day.

Time (t minutes)	Frequency
$0 < t \leq 10$	4
$10 < t \leq 20$	8
$20 < t \leq 30$	14
$30 < t \leq 40$	16
$40 < t \leq 50$	6
$50 < t \leq 60$	2

I More than 40 minutes

(a) Draw a frequency polygon for this information.



(3)

(b) Write down the modal class interval.

$30 < t \leq 40$

(1)

One of the office workers is chosen at random.

(c) Work out the probability that this office worker took more than 40 minutes to get to the office.

$4 + 8 + 14 + 16 + 6 + 2$

$= 50$

$\frac{8}{50}$

(2)

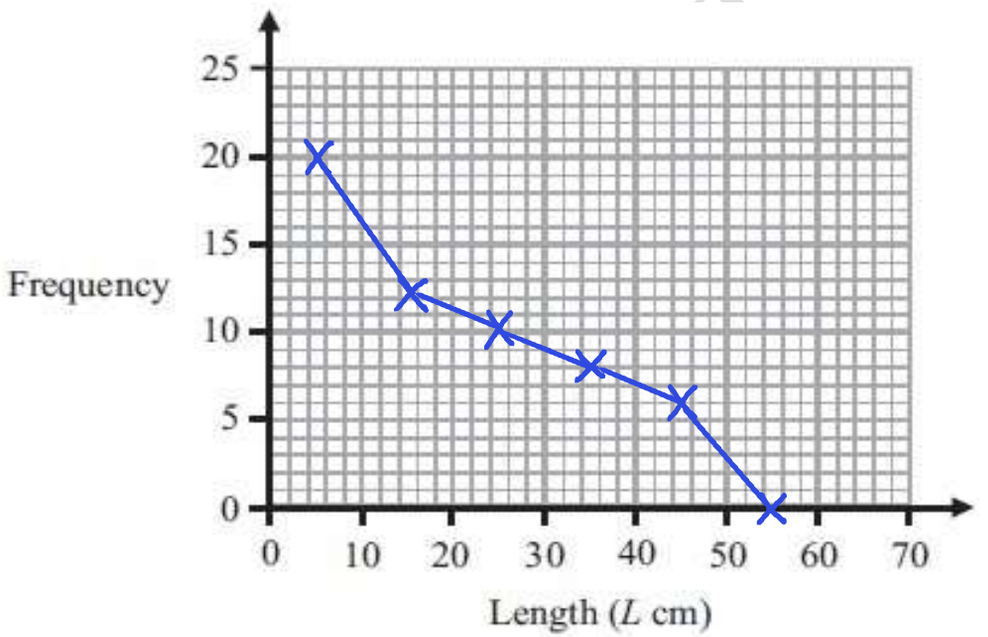
(6 marks)

6. The table gives information about the lengths of the branches on a bush.

Length (Lcm)	Frequency
$0 \leq L < 10$	20
$10 \leq L < 20$	12
$20 \leq L < 30$	10
$30 \leq L < 40$	8
$40 \leq L < 50$	6
$50 \leq L < 60$	0

Less than 20cm

(a) Draw a frequency polygon to show this information.



(3)

(b) Write down the modal class interval.

$0 \leq L < 10$

(1)

One of the branches is chosen at random.

(c) Work out the probability that this branch is less than 20 cm long.

$20 + 12 + 10 + 8 + 6 + 0$

$= 56$

$\frac{32}{56}$

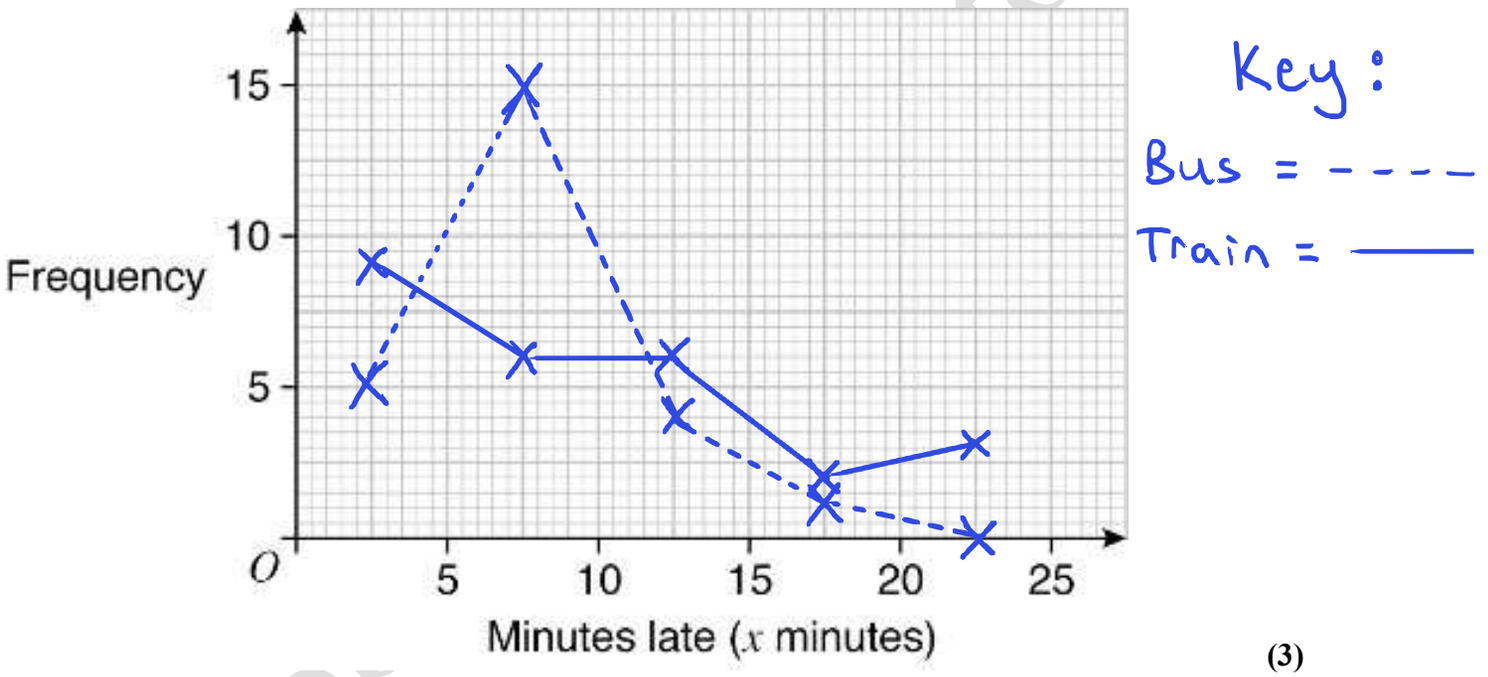
(2)

(6 marks)

7. In one month, Janet travelled by bus 25 times and by train 25 times.
The grouped frequency table records the number of minutes (x minutes) late each of her buses and trains were.

Minutes late	Bus	Train
$0 \leq x < 5$	5	9
$5 \leq x < 10$	15	6
$10 \leq x < 15$	4	6
$15 \leq x < 20$	1	2
$20 \leq x < 25$	0	3

(a) On the grid below draw two frequency polygons to illustrate this data.



(3)

(b) Use your polygons to compare the lateness of buses and trains and comment on any differences you observe.

The modal time for trains to be late is $0 \leq x < 5$ whereas for buses it's $5 \leq x < 10$. 5 train journeys were delayed by more than 15 minutes, whereas only 1 bus was delayed for over 15 minutes

(2)

(5 marks)