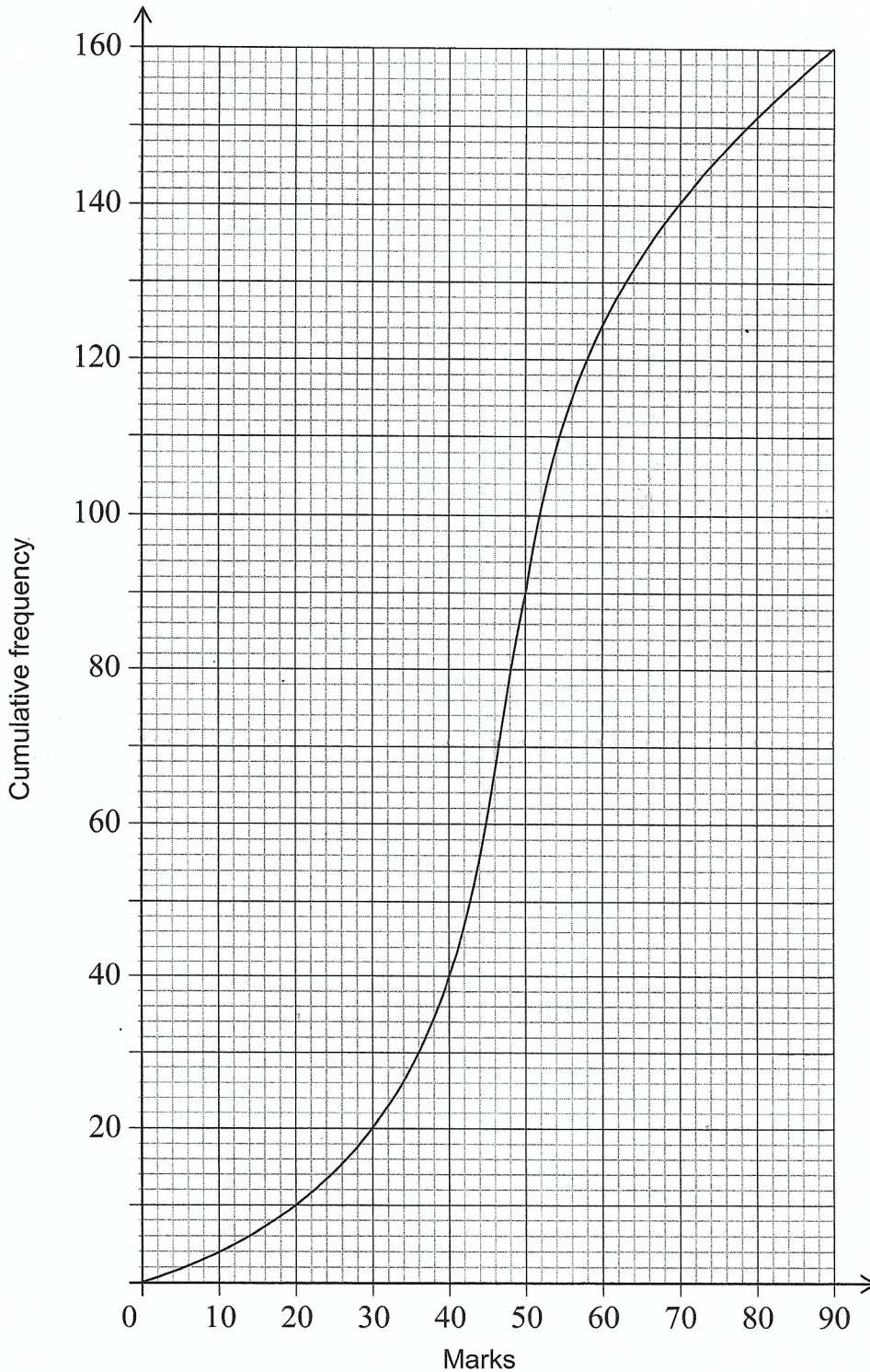


cf 1

3. In a school 160 students sat a mathematics examination. Their scores, given as marks out of 90, are summarized on the cumulative frequency diagram.



- (a) Write down the median score.

[1]

The lower quartile of these scores is 40.

- (b) Find the interquartile range.

[2]

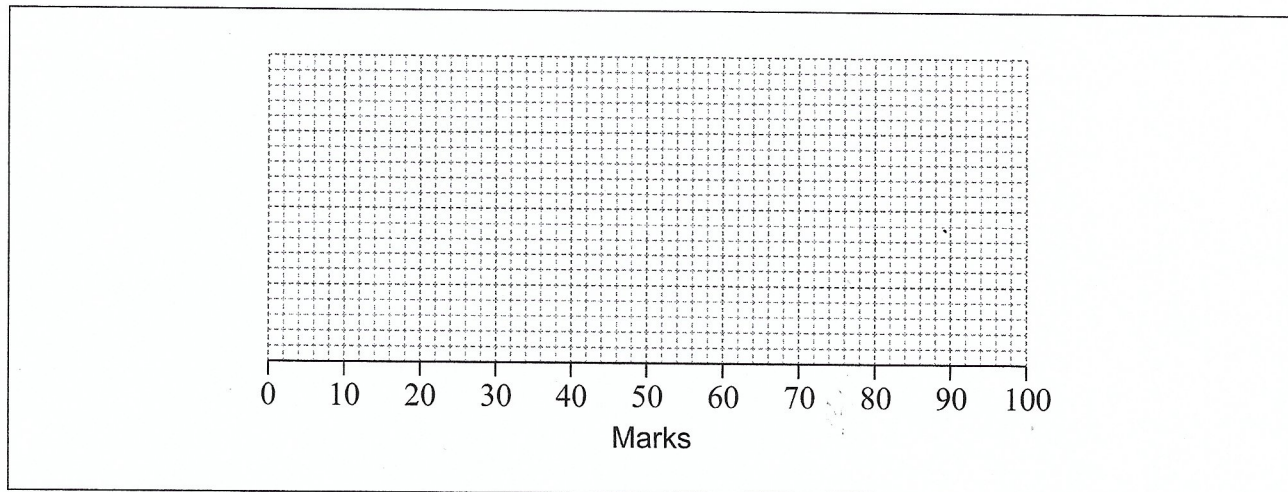
(This question continues on the following page)

(Question 3 continued)

The lowest score was 6 marks and the highest score was 90 marks.

- (c) Draw a box-and-whisker diagram on the grid below to represent the students' examination scores.

[3]



Working:

Answers:

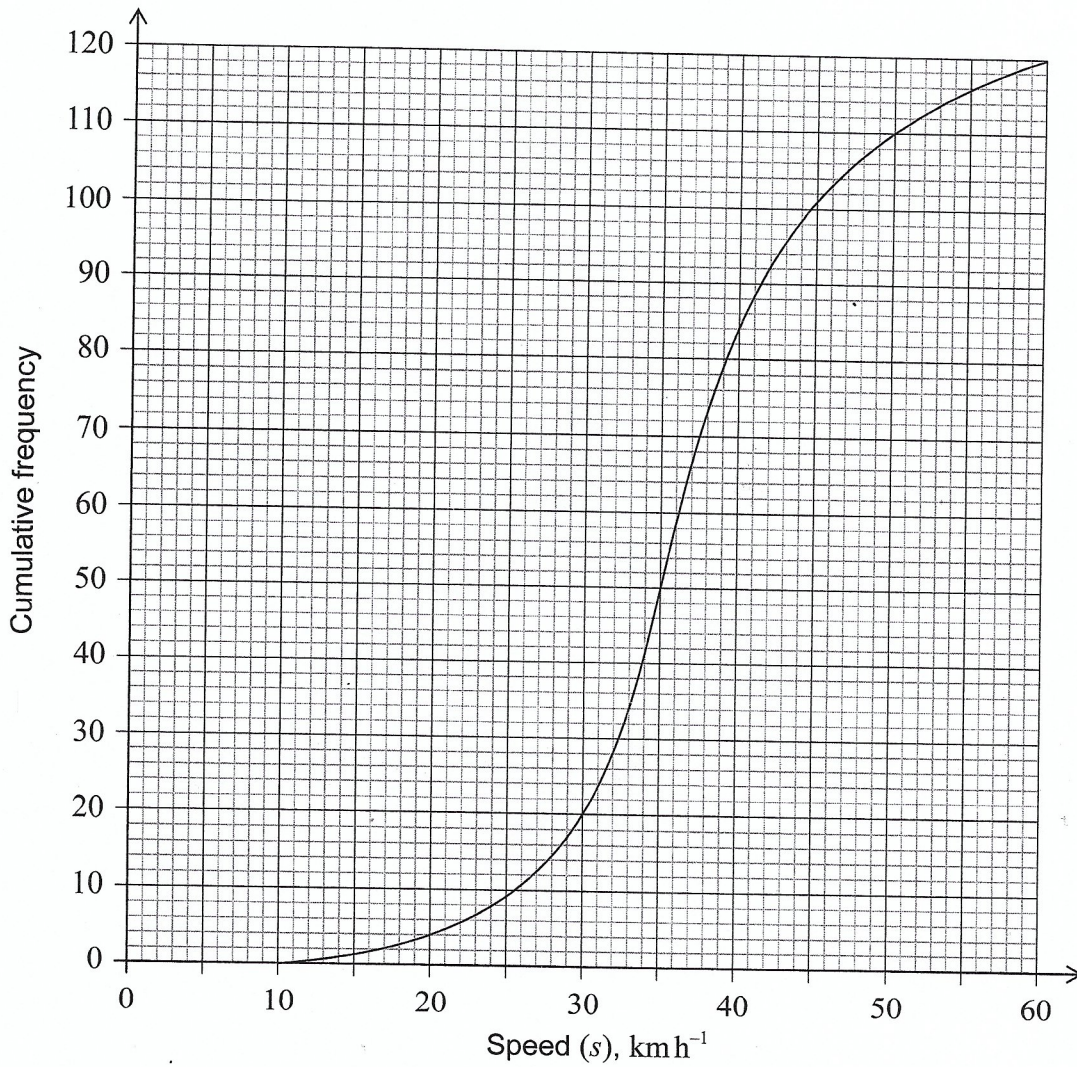
(a)

(b)

cf 2

3. [Maximum mark: 17]

The cumulative frequency graph shows the speed, s , in km h^{-1} , of 120 vehicles passing a hospital gate.



- (a) Estimate the minimum possible speed of one of these vehicles passing the hospital gate. [1]
- (b) Find the median speed of the vehicles. [2]
- (c) Write down the 75th percentile. [1]
- (d) Calculate the interquartile range. [2]

This question continues on the following page

Question 3 continued

The speed limit past the hospital gate is 50 km h^{-1} .

- (e) Find the number of these vehicles that exceed the speed limit.

[2]

The table shows the speeds of these vehicles travelling past the hospital gate.

Speed of Vehicles	Number of Vehicles
$0 < s \leq 10$	0
$10 < s \leq 20$	p
$20 < s \leq 30$	16
$30 < s \leq 40$	64
$40 < s \leq 50$	26
$50 < s \leq 60$	q

- (f) Find the value of p and of q .

[2]

- (g) (i) Write down the modal class.

- (ii) Write down the mid-interval value for this class.

[2]

- (h) Use your graphic display calculator to calculate an estimate of

- (i) the mean speed of these vehicles;

- (ii) the standard deviation.

[3]

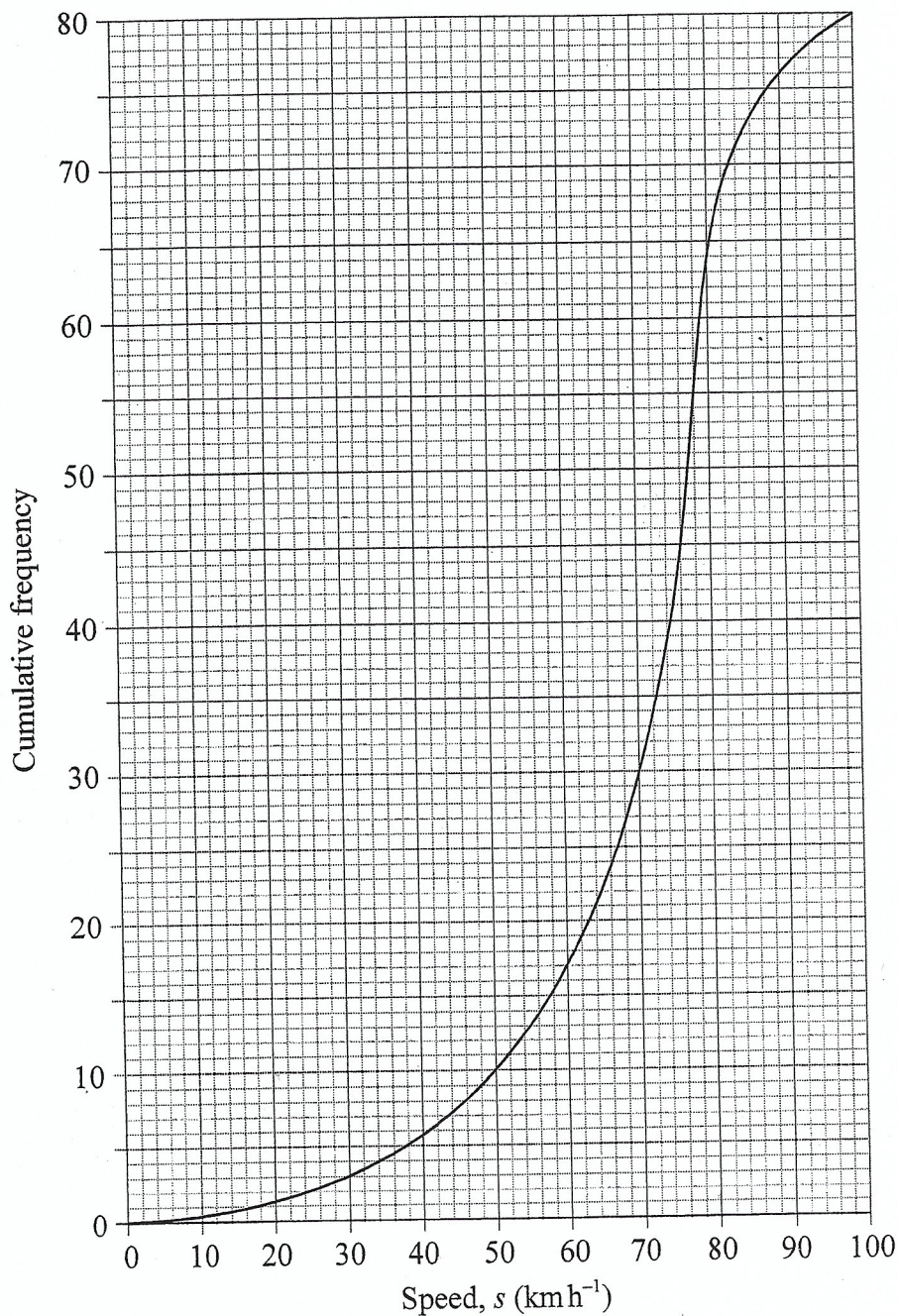
It is proposed that the speed limit past the hospital gate is reduced to 40 km h^{-1} from the current 50 km h^{-1} .

- (i) Find the percentage of these vehicles passing the hospital gate that **do not** exceed the current speed limit but **would** exceed the new speed limit.

[2]

CF3

6. The cumulative frequency graph represents the speed, s , in km h^{-1} , of 80 cars passing a speed camera.



- (a) Write down the number of cars passing the camera with speed of less than or equal to 50 km h^{-1} . [1]

(This question continues on the following page)

(Question 6 continued)

- (b) Complete the following grouped frequency table for s , the speed of the cars passing the camera.

s (km h^{-1})	$0 < s \leq 50$	$50 < s \leq 70$	$70 < s \leq 80$	$80 < s \leq 90$	$90 < s \leq 100$
Frequency			34		4

[1]

- (c) Write down the mid-interval value of the $50 < s \leq 70$ interval.

[1]

- (d) Use your graphic display calculator to find an estimate of

- (i) the mean speed of the cars passing the camera;

- (ii) the standard deviation of the speed of the cars passing the camera.

[3]

Working:

Answers:

- (a)
- (c)
- (d) (i)
- (ii)