Questions on Grouped Data

Q1.

The table shows information about the lengths, in seconds, of 40 TV adverts.
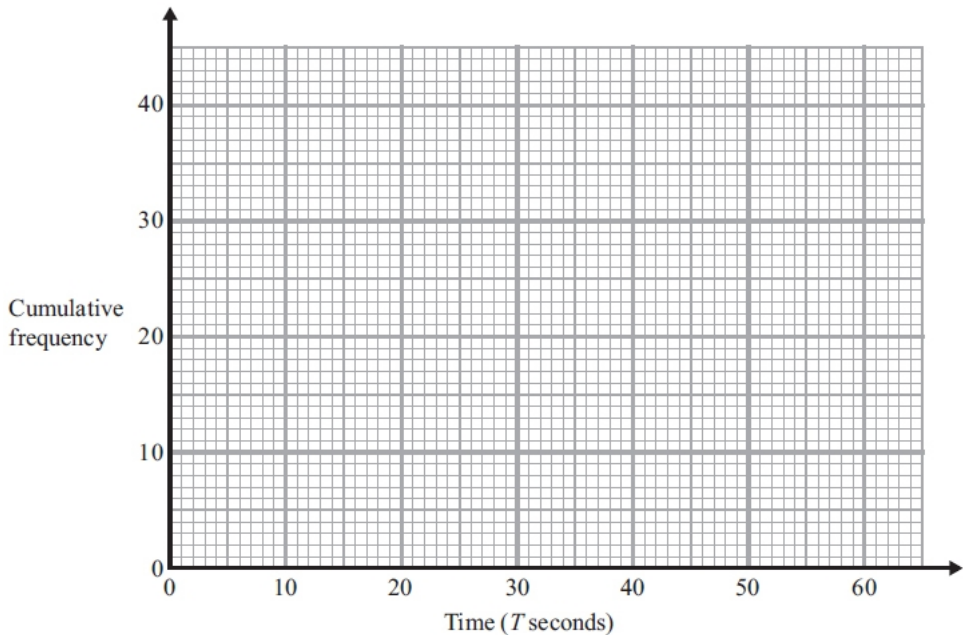
Time (*T* seconds)	Frequency
10 < *T* ≤ 20	4
20 < *T* ≤ 30	7
30 < *T* ≤ 40	13
40 < *T* ≤ 50	12
50 < *T* ≤ 60	4

(a) Complete the cumulative frequency table for this information.

Time (*T* seconds)	Cumulative frequency
10 < *T* ≤ 20	4
10 < *T* ≤ 30	
10 < *T* ≤ 40	
10 < *T* ≤ 50	
10 < *T* ≤ 60	

(1)

(b) On the grid, draw a cumulative frequency graph for your table.

(2)

(c) Use your graph to find an estimate for the median length of these TV adverts.

. . . . seconds

(1)

(Total for Question is 4 marks)

Q2.

The table shows some information about the weights of oranges.

Weight (*w* grams)	Frequency
0 < *w* ≤ 20	
20 < *w* ≤ 30	15
30 < *w* ≤ 50	
50 < *w*≤ 60	13
60 < *w*≤ 75	15
75 < *w* ≤ 100	10

(a) Use the histogram to complete the table.

(2)

(b) Use the table to complete the histogram.

(2)

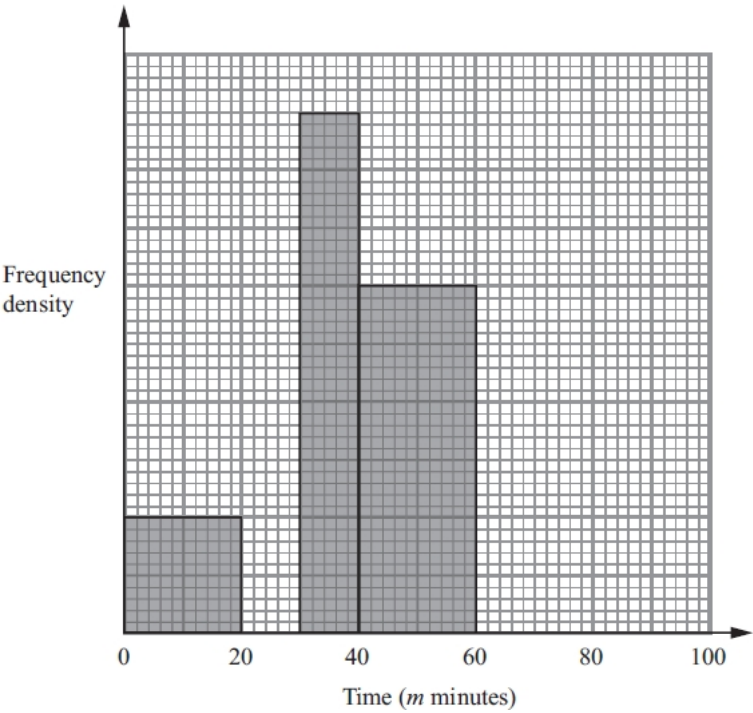Frequency density

Weight (grams)
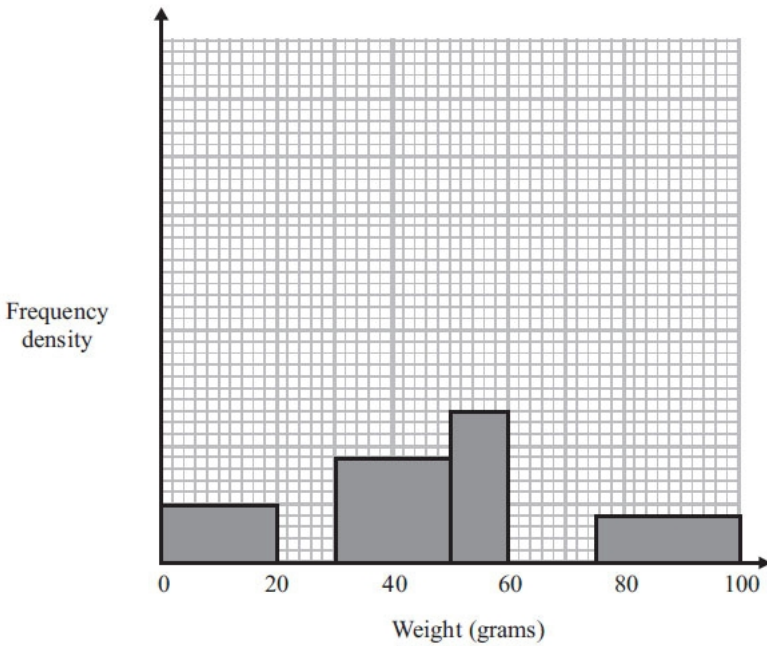
(Total for Question is 4 marks)

Q3.

The table and the histogram show some information about the time, in minutes, taken by a group of students to travel to college in one week.

Time (m minutes)	Frequency
$0 < m \leqslant 20$	20
$20 < m \leqslant 30$	30
$30 < m \leqslant 40$	
$40 < m \leqslant 60$	
$60 < m \leqslant 100$	48

(a) Use the histogram to complete the table.

(2)

(b) Use the table to complete the histogram.

(2)

(c) Work out an estimate for the median time.

.... minutes

(2)

(Total for Question is 6 marks)

Q4.

The table shows information about the speeds of 100 lorries.

Speed (*s*) in km/h	Frequency
0 < *s* ≤ 20	2
20 < *s* ≤ 40	9
40 < *s* ≤ 60	23
60 < *s* ≤ 80	31
80 < *s* ≤ 100	27
100 < *s* ≤ 120	8

(a) Complete the cumulative frequency table for this information.

Speed (*s*) in km/h	Cumulative frequency
0 < *s* ≤ 20	2
0 < *s* ≤ 40	
0 < *s* ≤ 60	
0 < *s* ≤ 80	
0 < *s* ≤ 100	
0 < *s* ≤ 120	

(1)

(b) On the grid, draw a cumulative frequency graph for your table.

(2)
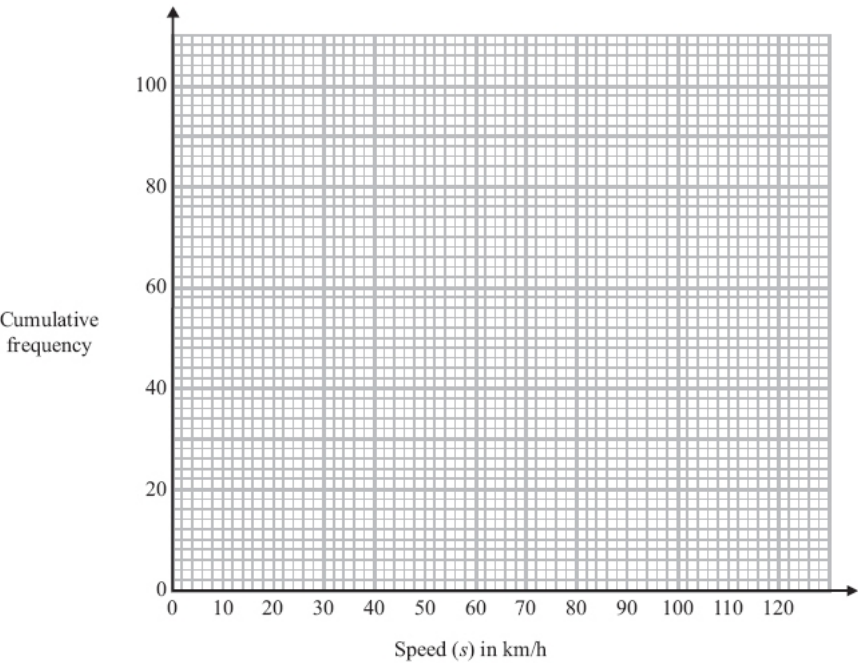
(c) Find an estimate for the number of lorries with a speed of more than 90 km/h.

....
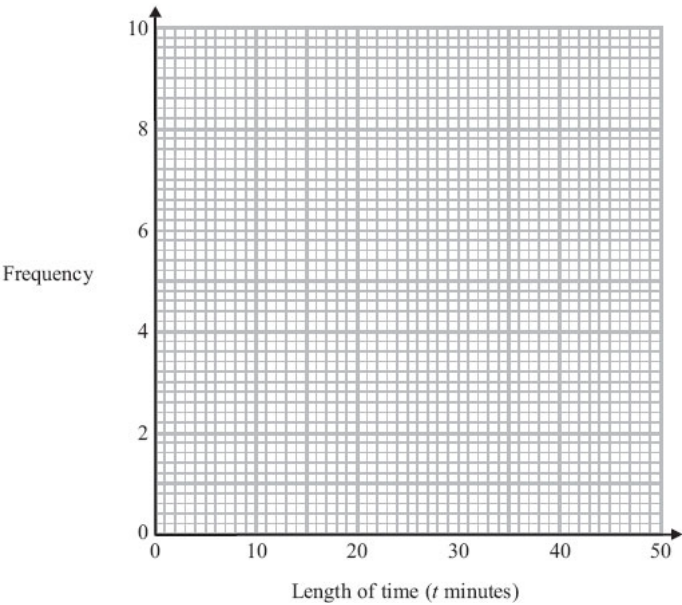
(2)

(Total for Question is 5 marks)

Q5.

Helen went on 35 flights in a hot air balloon last year.

The table gives some information about the length of time, t minutes, of each flight.

Length of time (t minutes)	Frequency
$0 < t \leqslant 10$	6
$10 < t \leqslant 20$	9
$20 < t \leqslant 30$	8
$30 < t \leqslant 40$	7
$40 < t \leqslant 50$	5

On the grid below, draw a frequency polygon for this information.

Length of time (t minutes)

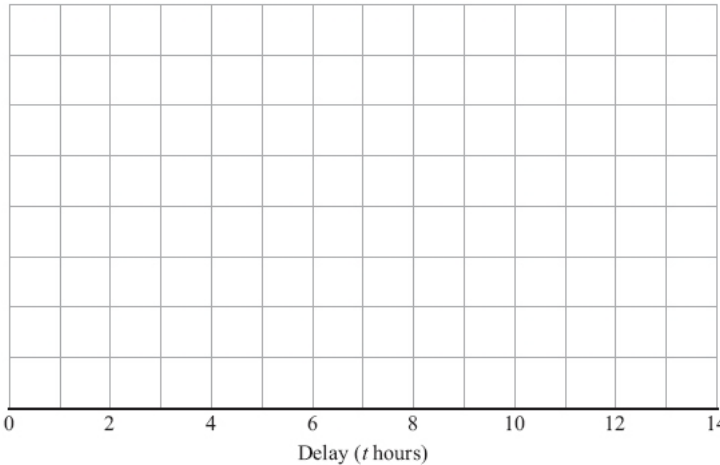**(Total for Question is 2 marks)**

Q6.

During one week in January, the flights from an airport were delayed.

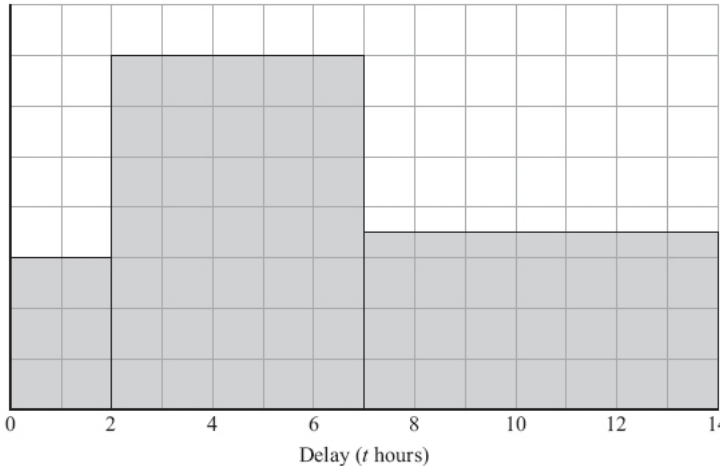The table shows information about the flight delays on Monday.

Delay (*t* hours)	Frequency
$0 < t \leq 2$	4
$2 < t \leq 7$	60
$7 < t \leq 11$	40
$11 < t \leq 13$	6

(a) Draw a histogram for the information given in the table.

Delay (*t* hours)

(3)

The histogram below shows information about the flight delays on Tuesday.

Delay (*t* hours)

12 flights were delayed for up to 2 hours.

Avi says

"A greater number of flights were delayed for more than 7 hours on Monday than for more than 7 hours on Tuesday."

(b) Is Avi correct?
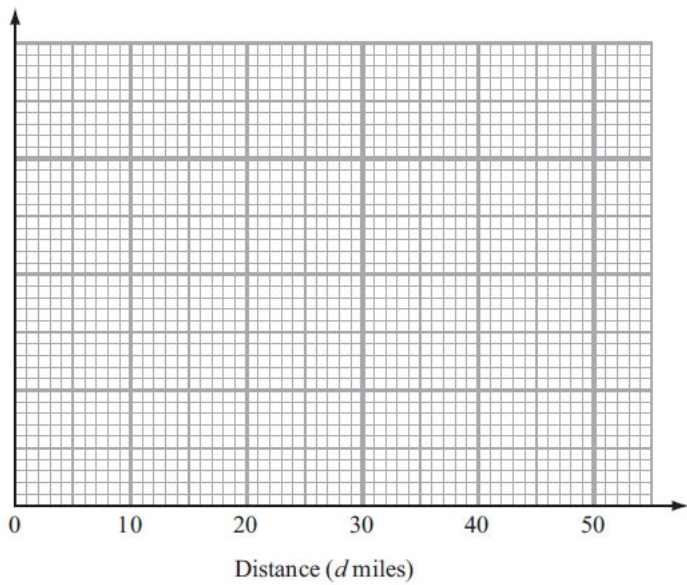   You must explain your answer

(2)

(Total for Question is 5 marks)

Q7.

The table gives some information about the distances, in miles, that some men travelled to work.

Distance (*d* miles)	Frequency
0 < *d* ≤ 5	15
5 < *d* ≤ 10	17
10 < *d* ≤ 20	10
20 < *d* ≤ 30	6
30 < *d* ≤ 50	2

(a) Draw a histogram for the information in the table.

Distance (*d* miles)

(3)

The histogram below shows information about the distances, in miles, that some women travelled to work.

Frequency density

Distance (*d* miles)
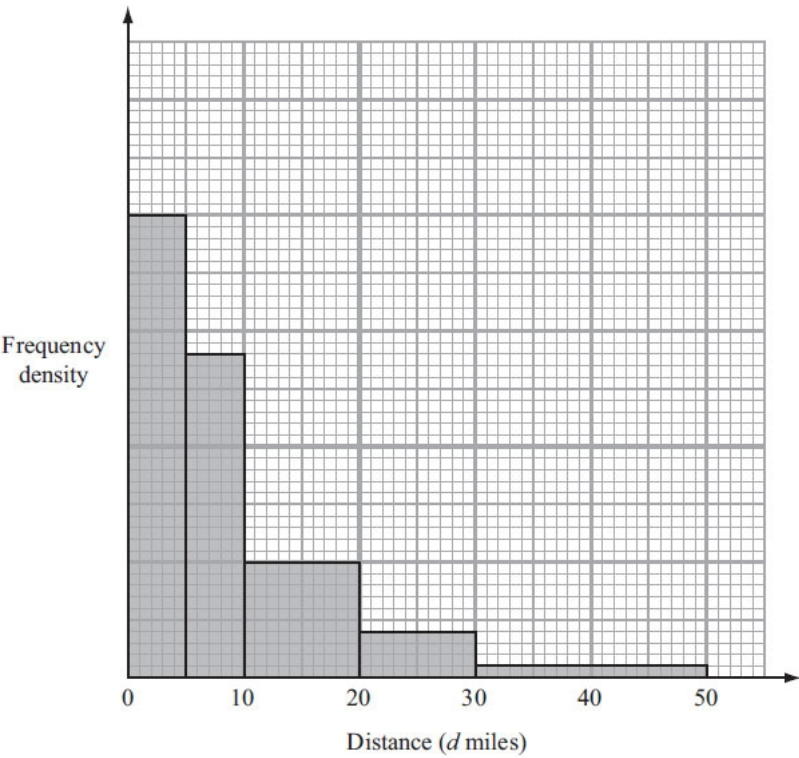
x women travelled between 10 and 20 miles to work.

(b) Find an expression, in terms of *x*, for the total number of women represented by the histogram.

. . . .

(2)

(Total for Question is 5 marks)

Q8.

Bob asked each of 40 friends how many minutes they took to get to work.

The table shows some information about his results.

Time taken (*m* minutes)	Frequency
$0 < m \leq 10$	3
$10 < m \leq 20$	8
$20 < m \leq 30$	11
$30 < m \leq 40$	9
$40 < m \leq 50$	9

Work out an estimate for the mean time taken.

. . . . minutes
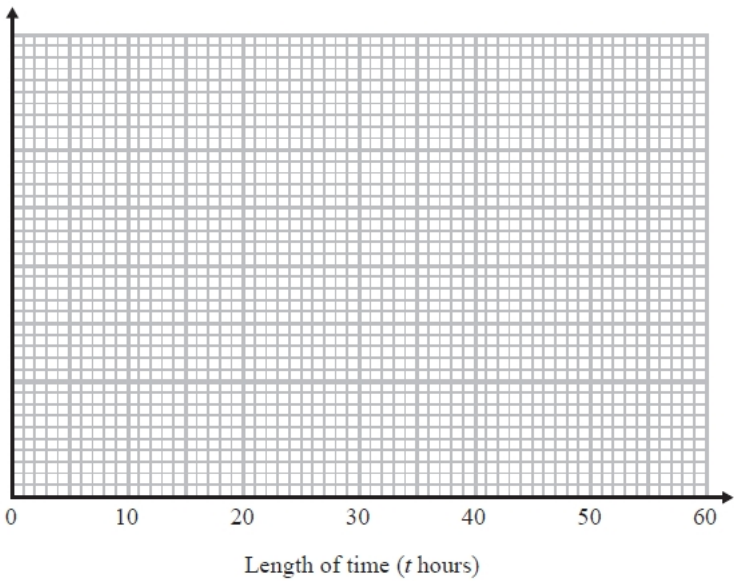
(Total for Question is 4 marks)

Q9.

The table gives some information about the lengths of time, in hours, that some adults watched TV last week.

Length of time (*t* hours)	Frequency
$0 \leq t < 10$	8
$10 \leq t < 15$	15
$15 \leq t < 20$	11
$20 \leq t < 30$	10
$30 \leq t < 50$	6

(a) Work out an estimate for the mean length of time.

.... hours

(4)

(b) Draw a histogram for the information in the table.

Length of time (*t* hours)

(3)

(Total for question = 7 marks)

Q10.

The table shows some information about the times, in minutes, 60 people took to get to work.

Time (*x* minutes)	Frequency		
$0 < x \leqslant 10$	5		
$10 < x \leqslant 30$	11		
$30 < x \leqslant 50$	23		
$50 < x \leqslant 80$	13		
$80 < x \leqslant 100$	8		

(a) Calculate an estimate for the mean.

.........................minutes

(4)

(b) Complete the cumulative frequency table.

Time (x minutes)	Cumulative frequency
$0 < x \leqslant 10$	
$0 < x \leqslant 30$	
$0 < x \leqslant 50$	
$0 < x \leqslant 80$	
$0 < x \leqslant 100$	

(1)

(c) On the grid draw a cumulative frequency graph for your table.
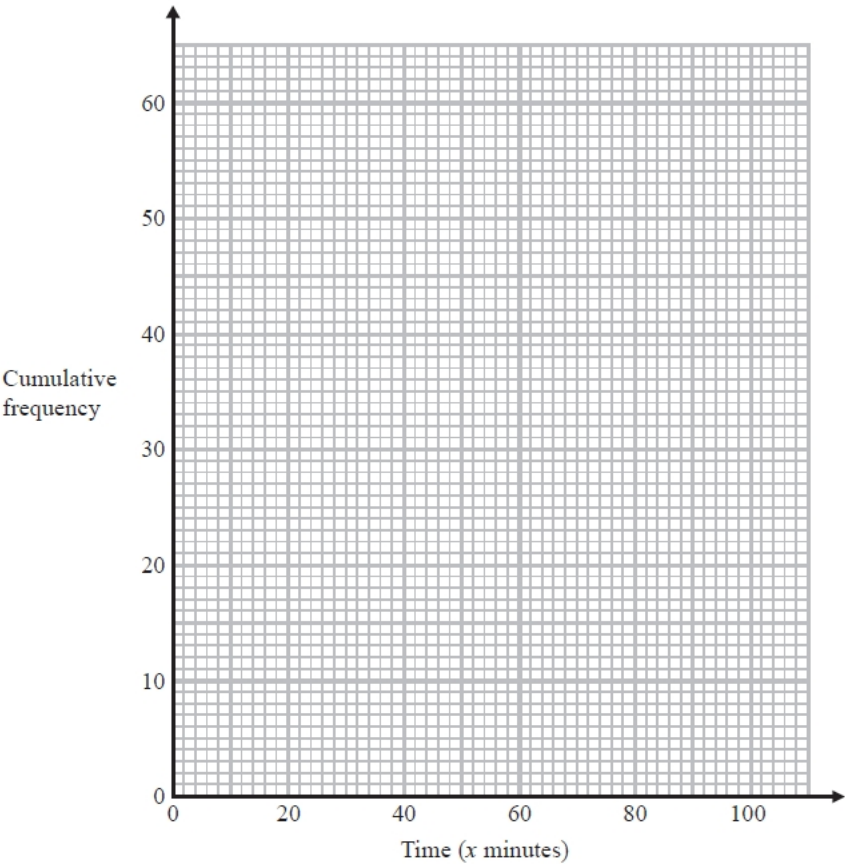
(2)

(d) Find an estimate for the number of people who took **more** than 1 hour to travel to work.

....

(2)

(Total for Question is 9 marks)