Paper Reference(s)

1380/4H

Edexcel GCSE

Mathematics (Linear) – 1380

Paper 4 (Calculator)

*Histograms

Past Paper Questions

Arranged by Topic
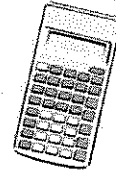
Materials required for examination	**Items included with question papers**
Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.	Nil

Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initials and signature.
Check that you have the correct question paper.
Answer ALL the questions. Write your answers in the spaces provided in this question paper.
You must NOT write on the formulae page.
Anything you write on the formulae page will gain NO credit.
If you need more space to complete your answer to any question, use additional answer sheets.

Information for Candidates

The marks for individual questions and the parts of questions are shown in round brackets: e.g. **(2)**.
There are 26 questions in this question paper. The total mark for this paper is 100.
There are 24 pages in this question paper. Any blank pages are indicated.
Calculators may be used.
If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

Advice to Candidates

Show all stages in any calculations.
Work steadily through the paper. Do not spend too long on one question.
If you cannot answer a question, leave it and attempt the next one.
Return at the end to those you have left out.

Turn over

1. The incomplete histogram and table give some information about the times, in minutes, that cars were parked in a car park.

Frequency density = $\dfrac{\text{freq.}}{\text{width interval}}$
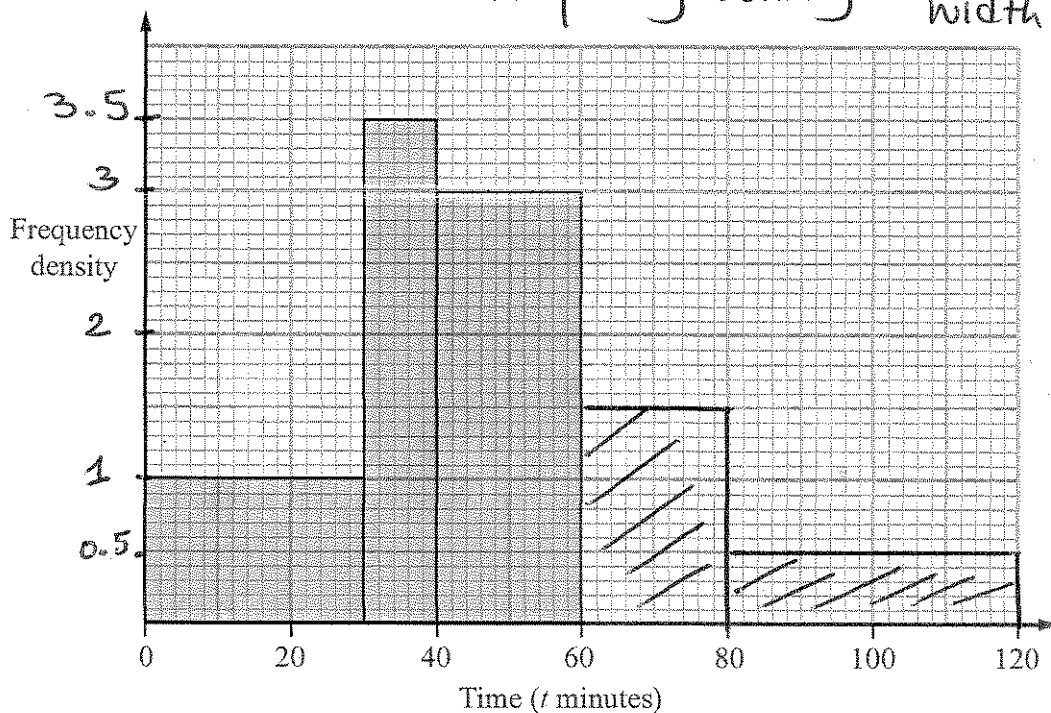
Time (*t* minutes)

(a) Use the information in the histogram to complete the frequency table.

Time (*t* minutes)	Frequency	Frequency density
$0 < t \leqslant 30$	$1 \times 30 = 30$	1
$30 < t \leqslant 40$	35	$35 \div 10 = 3.5$
$40 < t \leqslant 60$	$3 \times 20 = 60$	3
$60 < t \leqslant 80$	30	$30 \div 20 = 1.5$
$80 < t \leqslant 120$	20	$20 \div 40 = 0.5$

(2)

(b) Use the information in the table to complete the histogram.
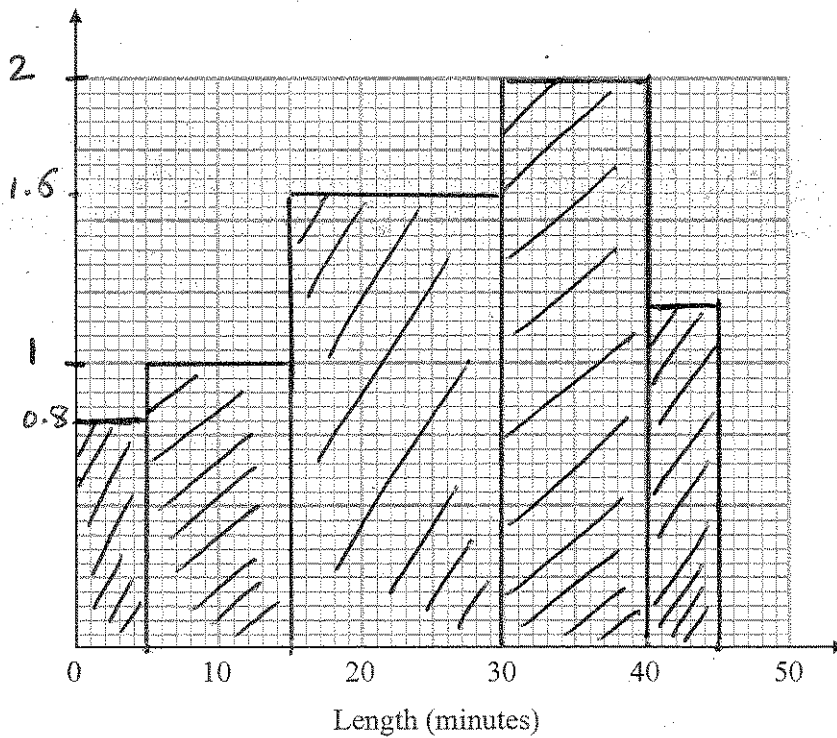
See above —

(2)   Q1

(Total 4 marks)

2

2. A call centre receives 64 telephone calls one morning.
The table gives information about the lengths, in minutes, of these telephone calls.

Length (x) minutes	Frequency	Freq. density
$0 < x \leqslant 5$	4	$4 \div 5 = 0.8$
$5 < x \leqslant 15$	10	$10 \div 10 = 1$
$15 < x \leqslant 30$	24	$24 \div 15 = 1.6$
$30 < x \leqslant 40$	20	$20 \div 10 = 2$.
$40 < x \leqslant 45$	6	$6 \div 5 = 1.2$

Draw a histogram for this information.

Frequency density

Length (minutes)

Q2

(Total 4 marks)

3. The incomplete histogram and table show information about the weights of some containers.

$(0.018 \times 1000) \rightarrow$

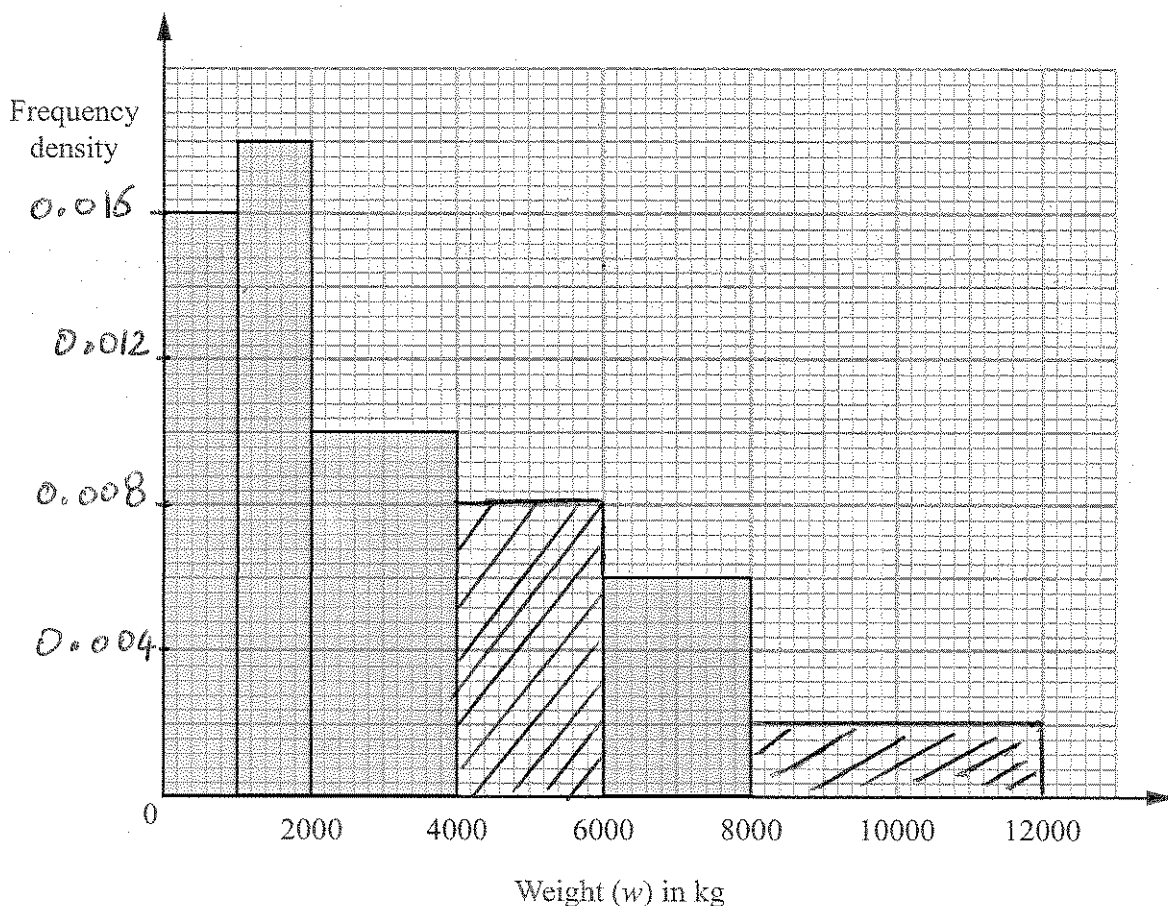$(0.010 \times 2000) \rightarrow$

$(0.006 \times 2000) \rightarrow$

Weight (w) in kg	Frequency	Freq. density
$0 < w \leqslant 1000$	16	$16 \div 1000 = 0.016$
$1000 < w \leqslant 2000$	18	0.018
$2000 < w \leqslant 4000$	20	0.010
$4000 < w \leqslant 6000$	16	$16 \div 2000 = 0.008$
$6000 < w \leqslant 8000$	12	0.006
$8000 < w \leqslant 12000$	8	$8 \div 4000 = 0.002$

(a) Use the information in the histogram to complete the table.

(2)

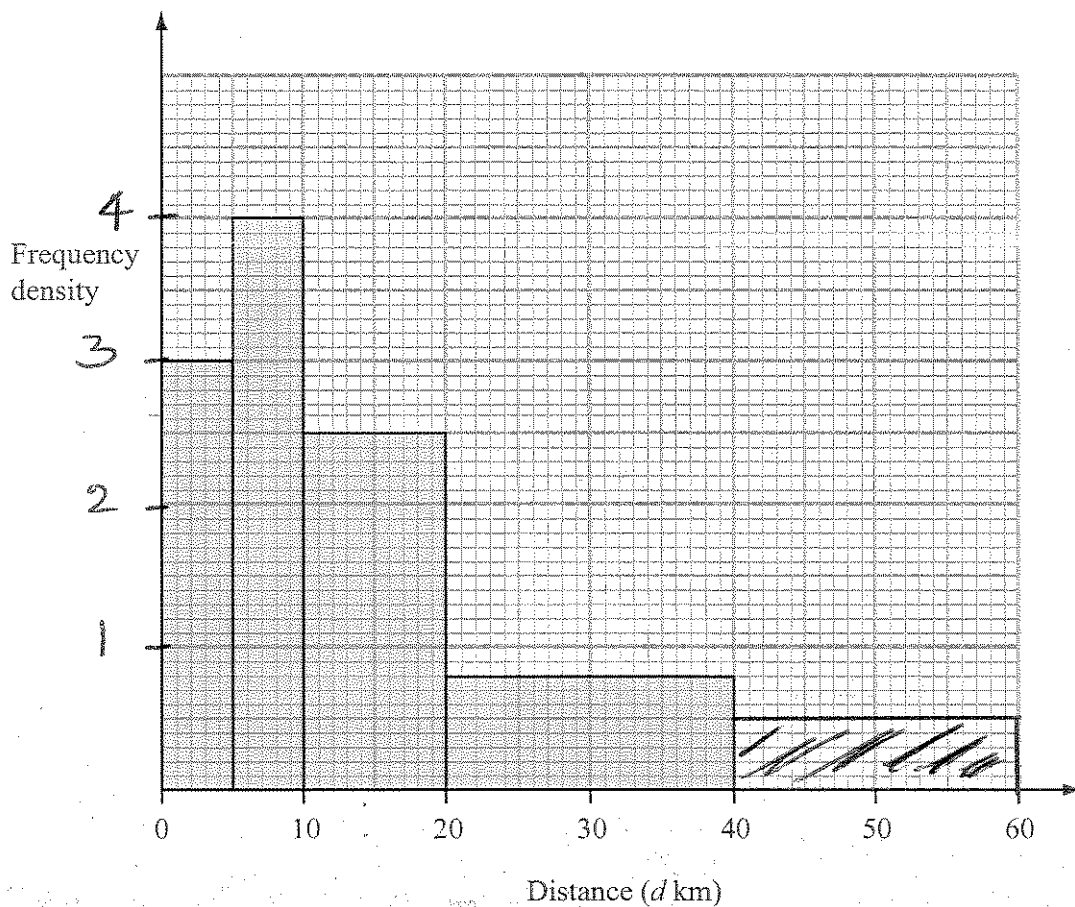(b) Use the information in the table to complete the histogram.

(2)

Frequency density

Weight (w) in kg

Q3

(Total 4 marks)

4. The incomplete histogram and table give some information about the distances some teachers travel to school.

Distance (*d* km)

(a) Use the information in the histogram to complete the frequency table.

2.5×10 = 25

0.8×20 = 16

Distance (*d* km)	Frequency	Freqvency densily
$0 < d \leqslant 5$	15	15÷5 = 3
$5 < d \leqslant 10$	20	20÷5 = 4
$10 < d \leqslant 20$	25	2·5
$20 < d \leqslant 40$	16	0·8
$40 < d \leqslant 60$	10	10÷20 = 0·5

(2)

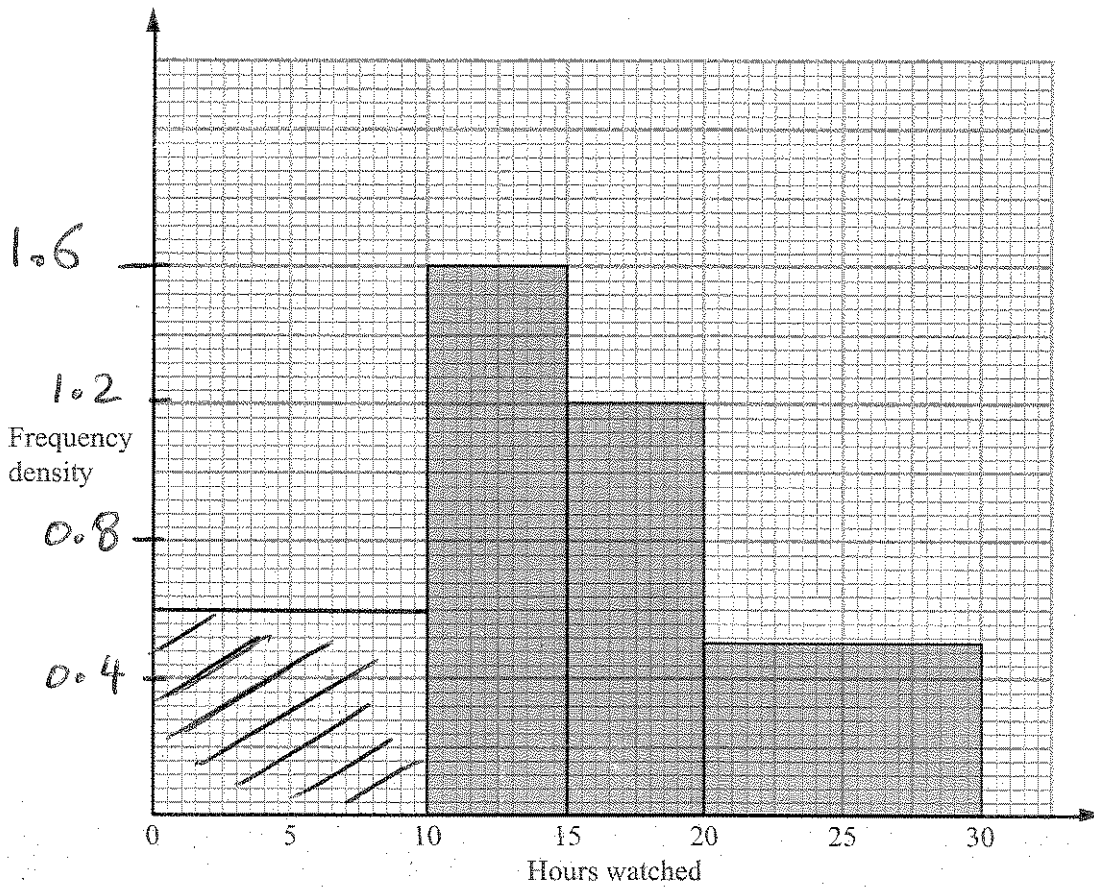(b) Use the information in the table to complete the histogram.

(1)

(Total 3 marks)

5. Tom asked the students in his class how many hours they watched television last week.

The incomplete histogram was drawn using his results.

Eight students watched television for between 10 and 15 hours. $\rightarrow$ Freq. density $= 8 \div 5 = 1.6$

Six students watched television for between 0 and 10 hours. $\rightarrow$ Freq. density $= 6 \div 10 = 0.6$

(a) Use this information to complete the histogram.

(2)

No students watched television for more than 30 hours.

(b) Work out how many students Tom asked.

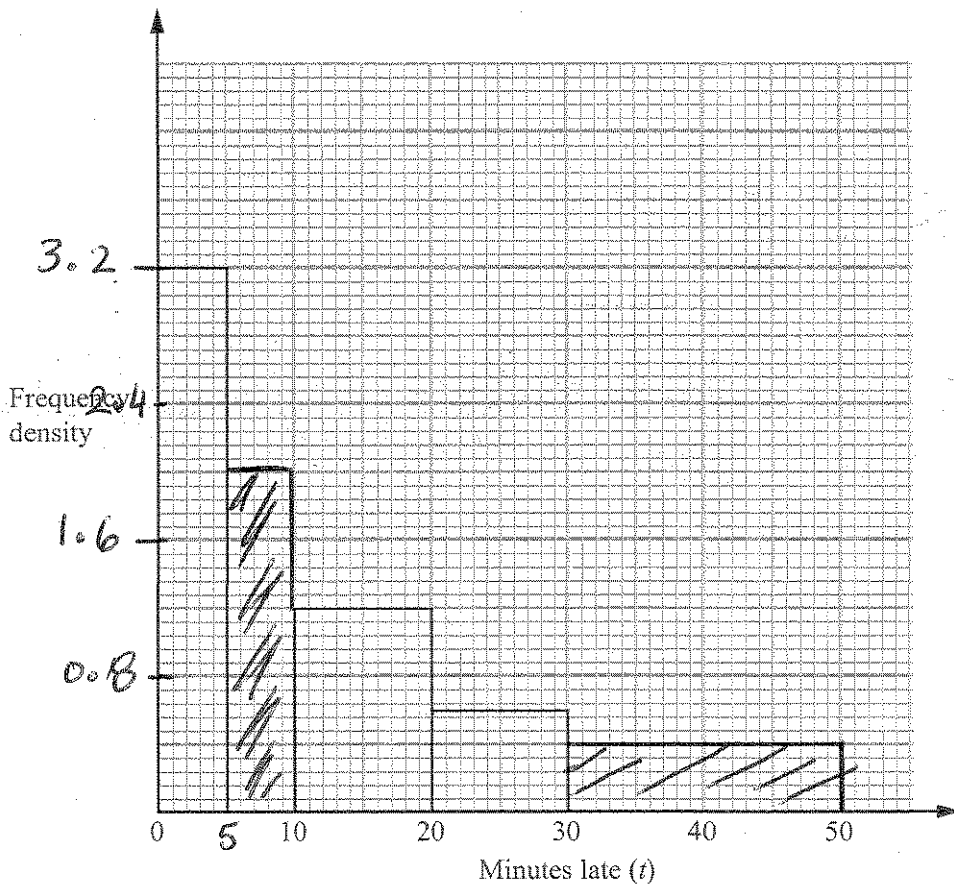$6 + 8 + 1.2 \times 5 + 10 \times 0.5 = 6 + 8 + 6 + 5$

25

(2)

(Total 4 marks)

Q5

6. Some trains from Manchester to London were late.
The incomplete table and histogram gives some information about how late the trains were.

Minutes late (t)	Frequency	Freq. density
$0 < t \leqslant 5$	16	$16 \div 5 = 3.2$
$5 < t \leqslant 10$	10	$10 \div 5 = 2$
$10 < t \leqslant 20$	12	1.2
$20 < t \leqslant 30$	6	0.6
$30 < t \leqslant 50$	8	$8 \div 20 = 0.4$

1.2×10
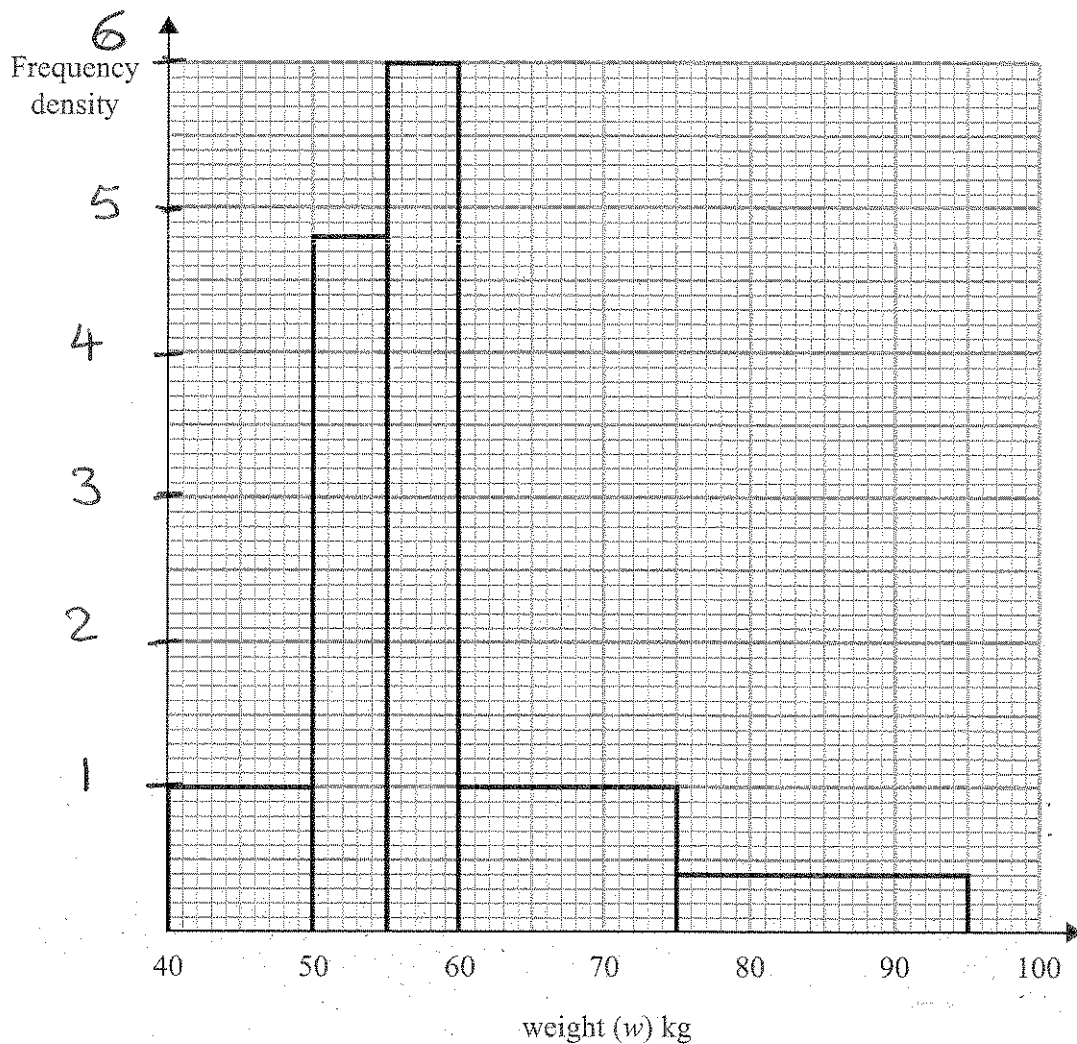
0.6×10

(a) Use the information in the histogram to complete the table.

(2)

(b) Use the information in the table to complete the histogram.

(2)   Q6

(Total 4 marks)

7. The incomplete table and histogram give some information about the weights of people at a keep-fit session.

weight (*w*) kg

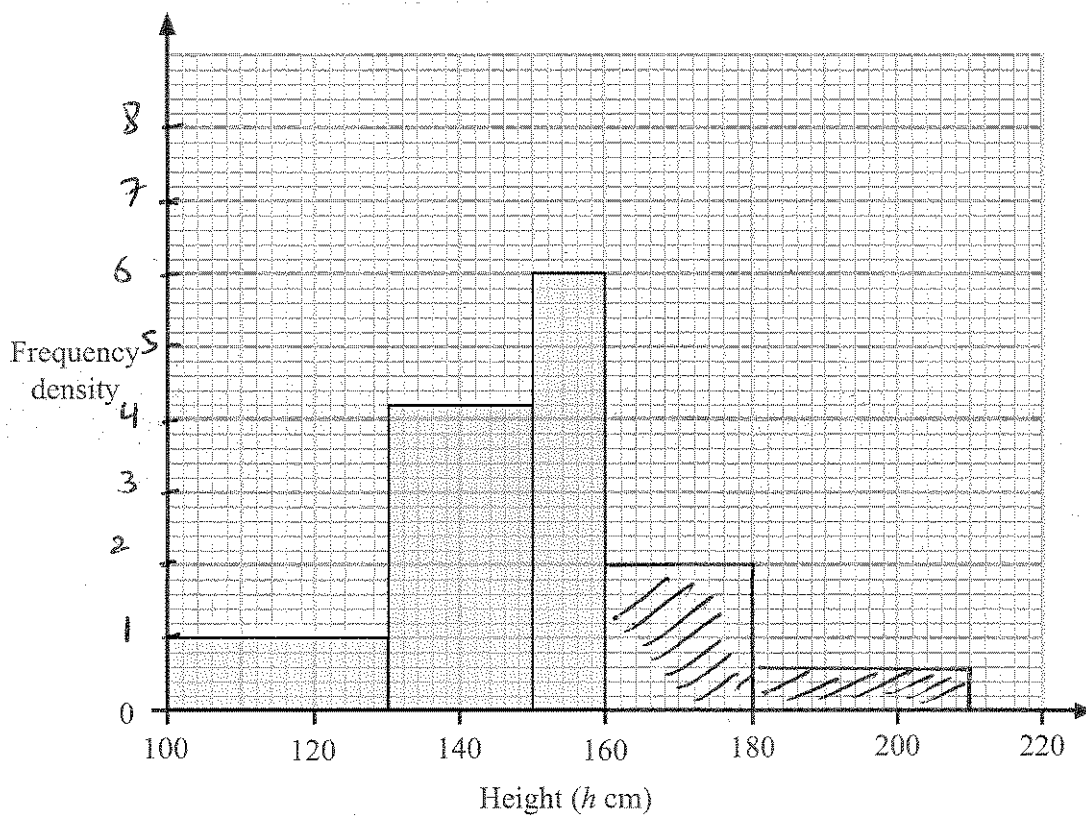Use the information in the histogram to complete the frequency table.

Weight (*w*) kg	Frequency	Freq. density
$40 \leqslant w < 50$	10	$10 \div 10 = 1$
$50 \leqslant w < 55$	$4.8 \times 5 = 24$	4.8
$55 \leqslant w < 60$	$6 \times 5 = 30$	6
$60 \leqslant w < 75$	15	
$75 \leqslant w < 95$	8	

(Total 2 marks)

8. The incomplete table and histogram give some information about the heights (in cm) of some sunflowers.

Height (h cm)	Frequency	Frequency density
$100 < h \leqslant 130$	30	$30 \div 30 = 1$
$130 < h \leqslant 150$	4.2×20	4.2
$150 < h \leqslant 160$	$6 \times 10 = 60$	6
$160 < h \leqslant 180$	40	$40 \div 20 = 2$
$180 < h \leqslant 210$	18	$18 \div 30 = 0.6$

Height (h cm)

(a) Use the histogram to complete the table.

(2)

(b) Use the table to complete the histogram.

(2)

(Total 4 marks)

9. The table and histogram show information about the length of time it took 165 adults to connect to the internet.

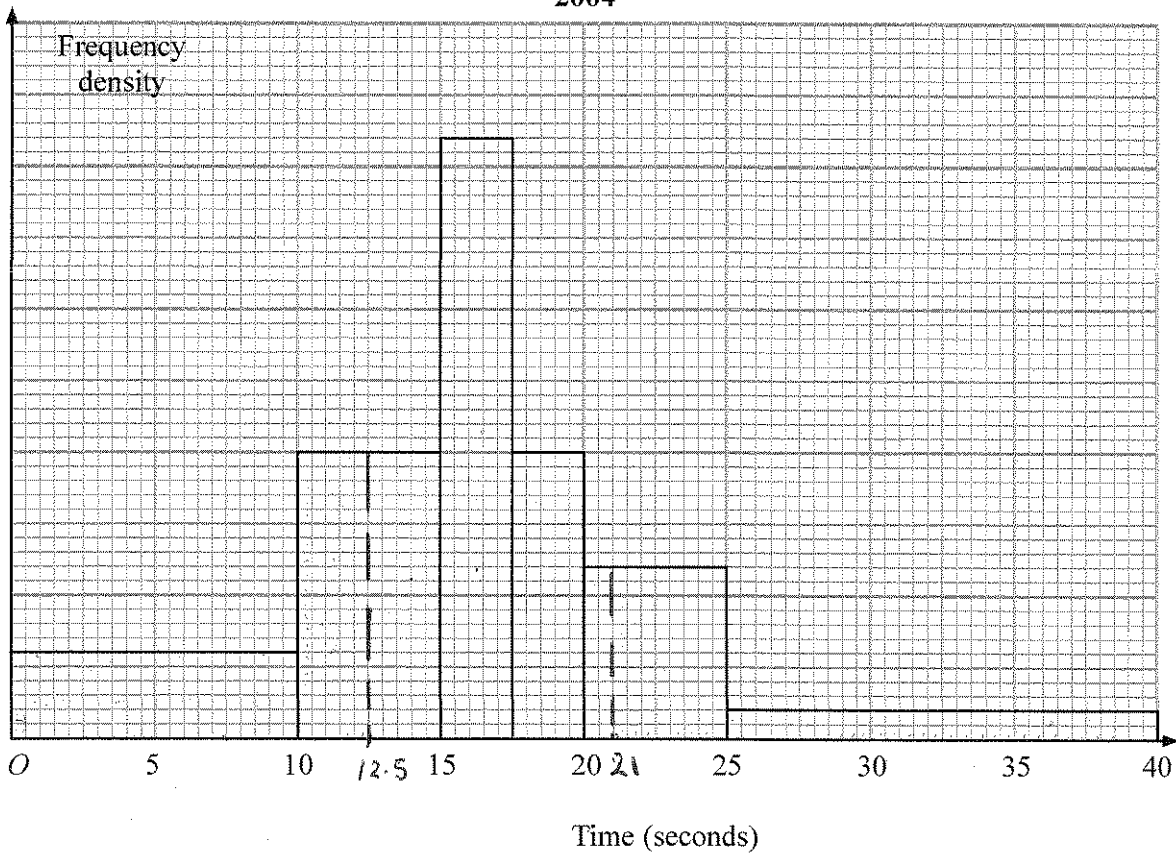| Time (t seconds)	Frequency	Freq. density
$0 < t \leqslant 10$	20	$20 \div 10 = 2$
$10 < t \leqslant 15$	$8 \times 5 = 40$	8
$15 < t \leqslant 17.5$	30	$30 \div 2.5 = 12$
$17.5 < t \leqslant 20$	40	$40 \div 2.5 = 16$
$20 < t \leqslant 25$	$4 \times 5 = 20$	4
$25 < t \leqslant 40$	$1 \times 15 = 15$	1

None of the adults took more than 40 seconds to connect to the internet.

(a) Use the table to complete the histogram.

(2)

(b) Use the histogram to complete the table.

(2)

2003

Time (seconds)
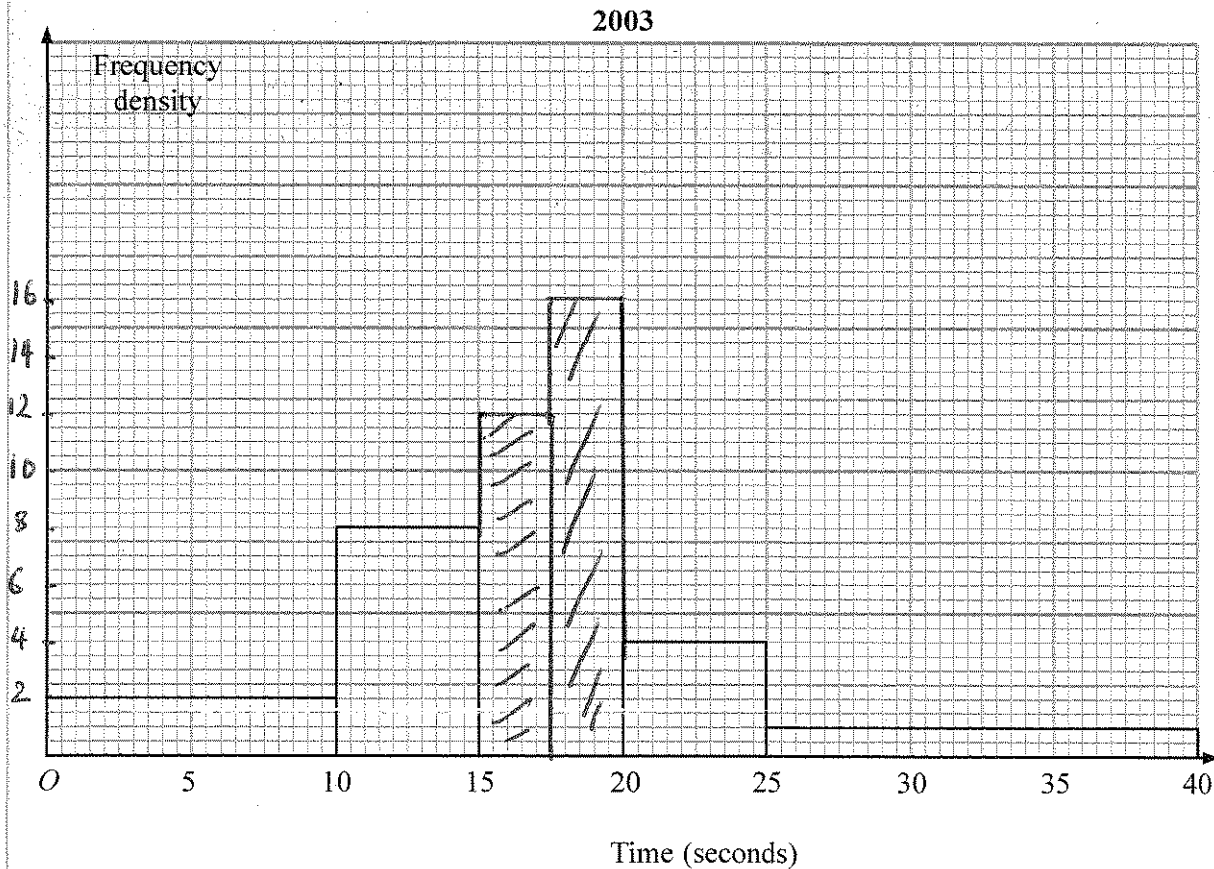
2004

Time (seconds)

The histogram shows information about the time it took some children to connect to the internet.
None of the children took more than 40 seconds to connect to the internet.

110 children took up to 12.5 seconds to connect to the internet.

(c) Work out an estimate for the number of children who took 21 seconds or more to connect to the internet.

$\boxed{////}$ represents ~~20 Children~~

$20 \times 6 = 120$
$5 \times 20 = \underline{100}$
$ 240$

$12 \times 8 = 96$
$2 \times 30 = 60 +$
$ \underline{156}$

$240 \rightarrow 110$ Children

$156 \rightarrow X$

$X = \dfrac{156 \times 110}{240}$

about
72 Children

..........72 Children..........

(3)   Q9

(Total 7 marks)

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