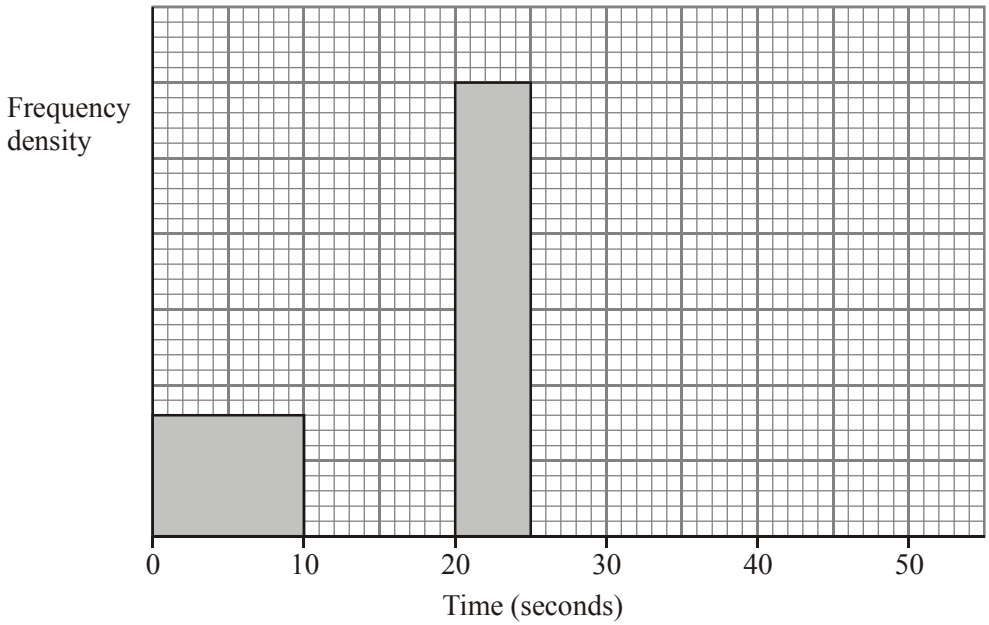
GCSE Exam Questions on Histograms (Grade A/A*)

1. One Monday, Victoria measured the time, in seconds, that individual birds spent on her bird table.

She used this information to complete the frequency table.

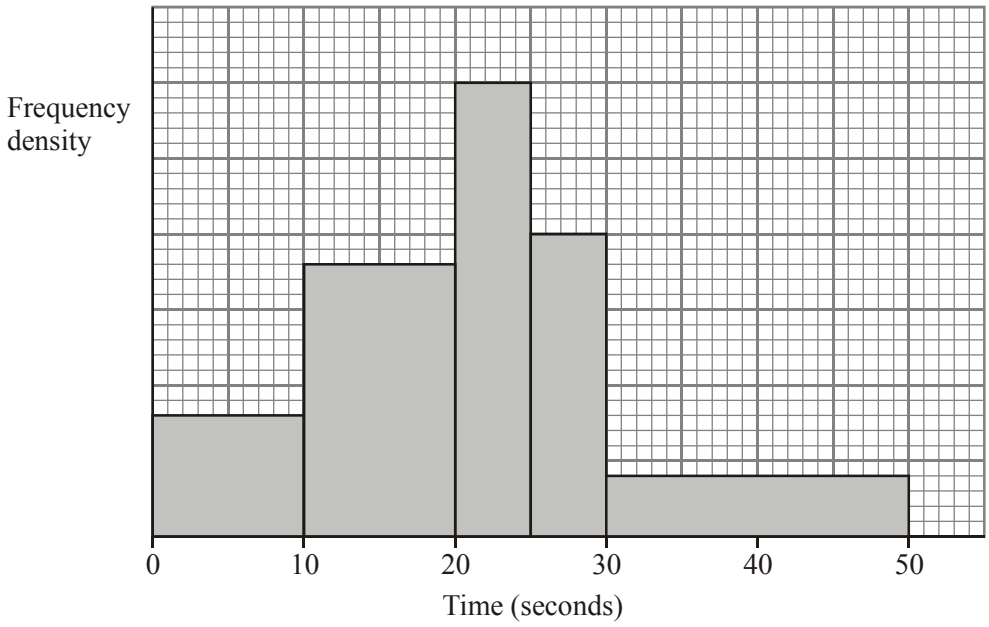
Time (t seconds)	Frequency
$0 < t \leq 10$	8
$10 < t \leq 20$	16
$20 < t \leq 25$	15
$25 < t \leq 30$	12
$30 < t \leq 50$	6

(a) Use the table to complete the histogram.



(3)

On Tuesday she conducted a similar survey and drew the following histogram from her results.

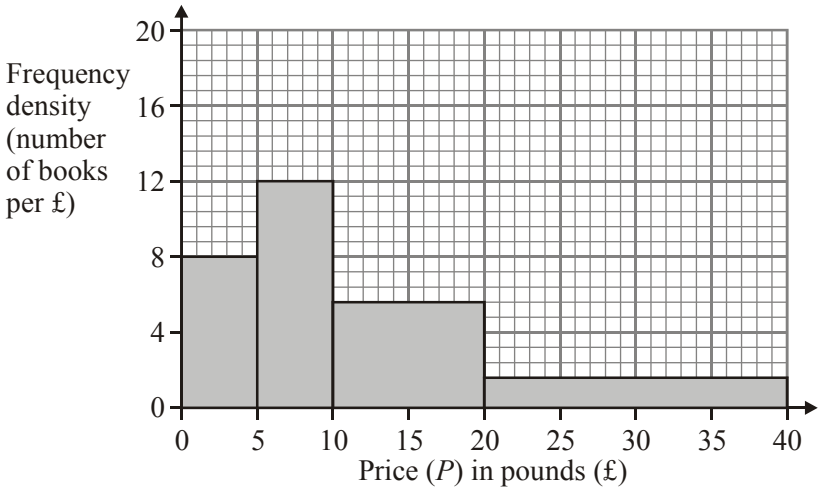


(b) Use the histogram for Tuesday to complete the table.

Time (t seconds)	Frequency
$0 < t \leq 10$	10
$10 < t \leq 20$	
$20 < t \leq 25$	
$25 < t \leq 30$	
$30 < t \leq 50$	

(2)
(Total 5 marks)

2. This histogram gives information about the books sold in a bookshop one Saturday.



(a) Use the histogram to complete the table.

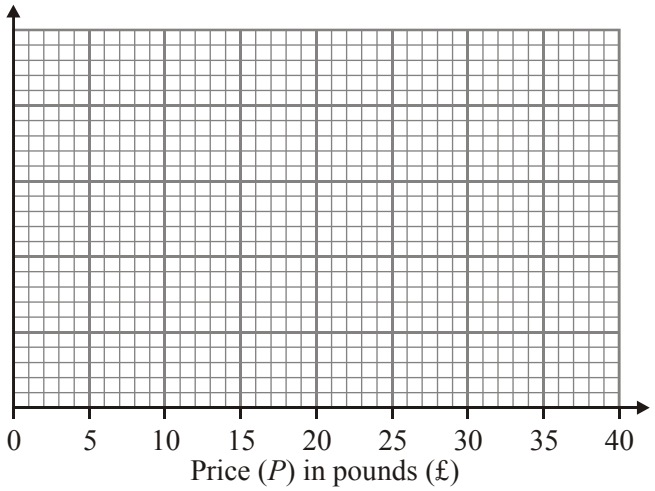
Price (P) in pounds (£)	**Frequency**
$0 < P \leq 5$	
$5 < P \leq 10$	
$10 < P \leq 20$	
$20 < P \leq 40$	

(2)

The frequency table below gives information about the books sold in a second bookshop on the same Saturday.

Price (P) in pounds (£)	**Frequency**
$0 < P \leq 5$	80
$5 < P \leq 10$	20
$10 < P \leq 20$	24
$20 < P \leq 40$	96

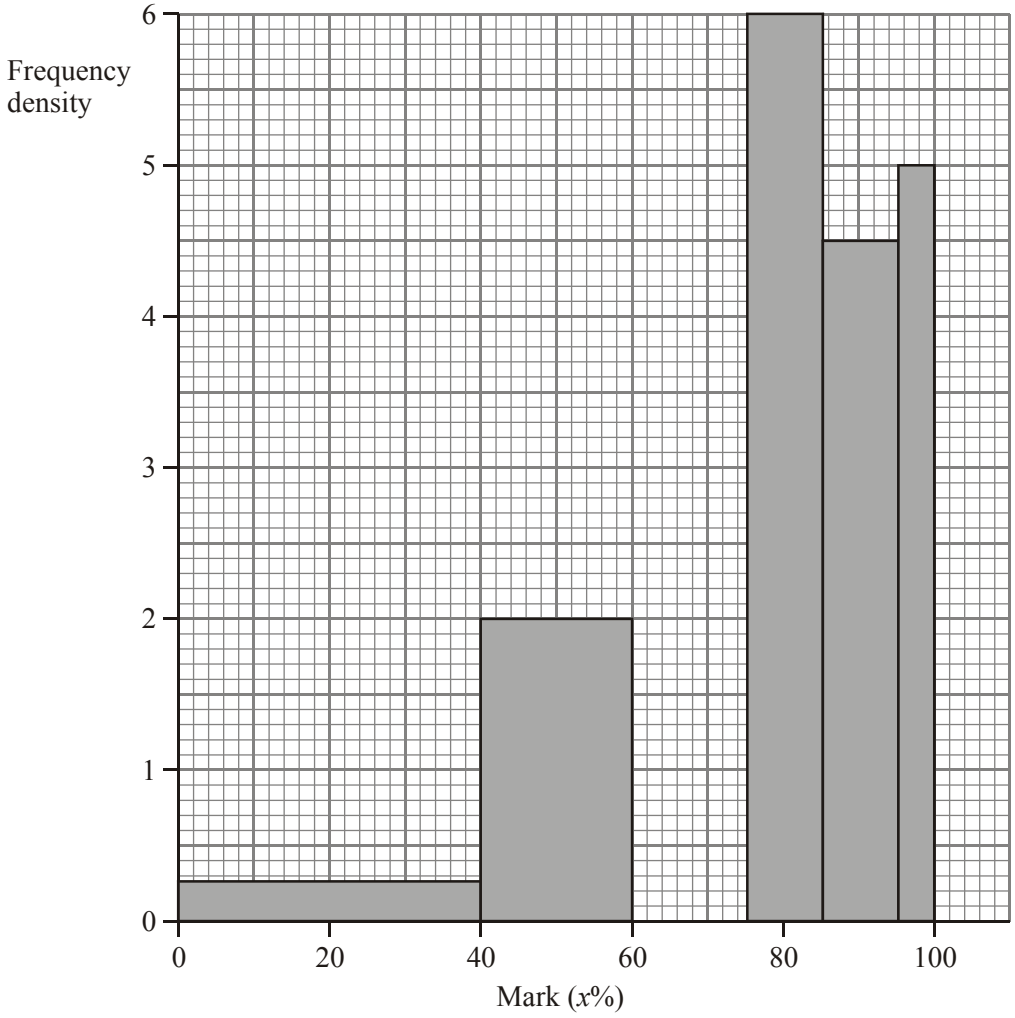
(b) On the grid below, draw a histogram to represent the information about the books sold in the second bookshop.



(3)
(Total 5 marks)

3. Some students at Highfliers School took a mathematics examination.
The unfinished table and histogram show some information about their marks.

Mark (x%)	Frequency
$0 < x \leq 40$	10
$40 < x \leq 60$	40
$60 < x \leq 75$	45
$75 < x \leq 85$	60
$85 < x \leq 95$	
$95 < x \leq 100$	25



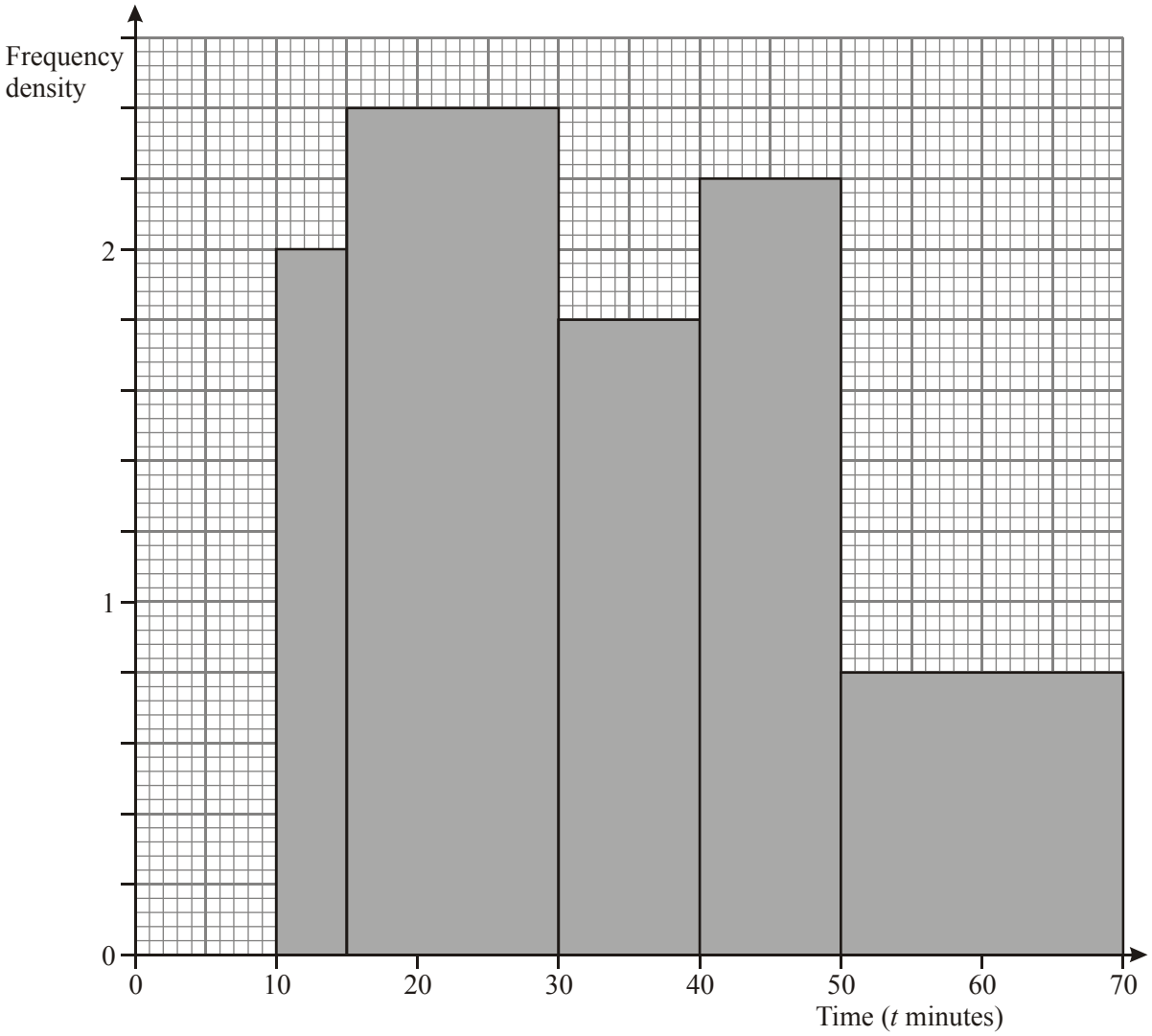
(a) Use the information in the table to complete the histogram.

(1)

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

(1)
(Total 2 marks)

4. A teacher asked some year 10 students how long they spent doing homework each night.
The histogram was drawn from this information.



Use the histogram to complete the table.

Time (t minutes)	Frequency
$10 \leq t < 15$	10
$15 \leq t < 30$	
$30 \leq t < 40$	
$40 \leq t < 50$	
$50 \leq t < 70$	

(Total 2 marks)

Answers

. (a) Frequency densities of 8 ÷ 10 = **0.8**
16 ÷ 10 = **1.6**, 15 ÷ 5 = **3**, 12 ÷ 5 = **2.4**
6 ÷ 20 = **0.3** 3

B1+ B1 + B1 for each correct column shown on histogram
If B0, then M1 for clear attempt to use frequency density or area

(b) 18, 14, 10, 8 2

1.8 × 10 = 18, 2.8 × 5 = 14, 2 × 5 = 10, 0.4 × 20 = 8

B2 all correct
B1 2 or 3 correct
5
□ 5 =
$\frac{25}{80}$ = 2.5 birds

[5]

2. (a) 40, 60, 56, 32 2

B2 for all frequencies correct
(B1 for any 1 frequency correct)

(b) 3

B1 for Frequency density label or appropriate units
B2 for 4 correct histogram bars $\pm\frac{1}{2}sq$
(B1 for 2 bars correct)

[5]

3. (a) bar to 3 1

Bar 6cm high … (to 3) in correct place
B1 cao

(b) 45 1
B1 cao

[2]

4. (10), 36, 18, 22, 16 2

B2 for all 4 answers correct
(B1 for any 2 correct answers)

[2]