

# Histograms

20 marks

1. The table and histogram give information about how long, in minutes, some students took to complete a homework.

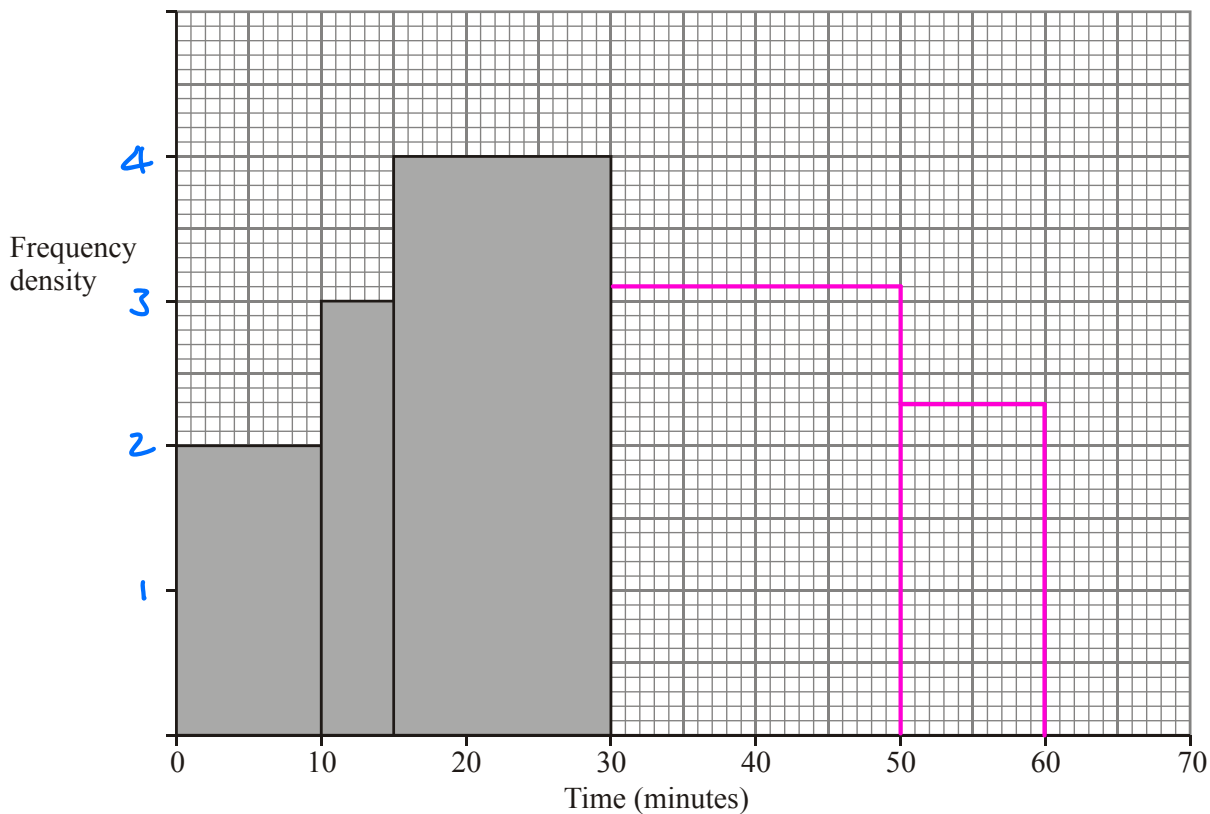
Time ( $t$ ) in minutes	Frequency
$0 < t \leq 10$	20
$10 < t \leq 15$	15
$15 < t \leq 30$	60
$30 < t \leq 50$	62
$50 < t \leq 60$	23

$\text{Freq} = 5 \times 3$   
 $\text{Freq} = 15 \times 4$

$\text{F.D.} = \text{Freq} \div \text{width}$   
 $20 \div 10 = 2$

$\text{F.D. } 62 \div 20 = 3.1$

$\text{F.D. } 23 \div 10 = 2.3$



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

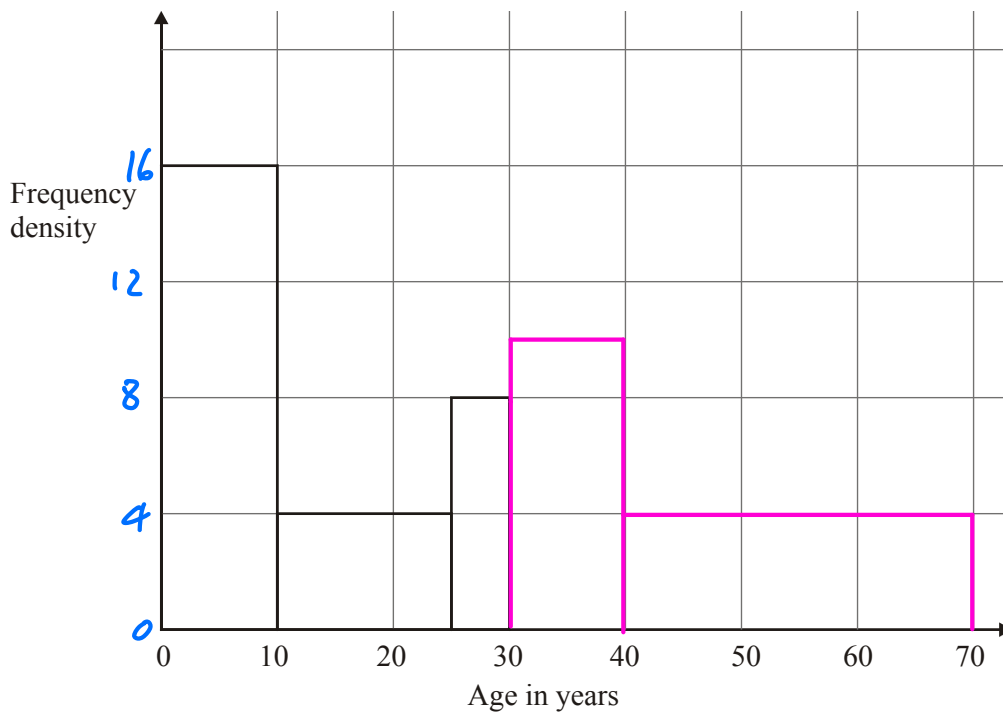
(2)

- (b) Use the table to complete the histogram.

(2)

(Total 4 marks)

2. The incomplete table and histogram give some information about the ages of the people who live in a village.



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

Age ( $x$ ) in years	Frequency
$0 < x \leq 10$	160
$10 < x \leq 25$	60
$25 < x \leq 30$	40
$30 < x \leq 40$	100
$40 < x \leq 70$	120

$$\text{Freq} = 15 \times 4 = 60$$

$$\text{Freq} = 5 \times 8 = 40$$

$$FD = 160 \div 10 = 16$$

$$FD = 100 \div 10 = 10$$

$$FD = 120 \div 30 = 4$$

(2)

- (b) Complete the histogram.

(2)

(Total 4 marks)

3. 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

$$FD = 8 \div 10 = 0.8$$

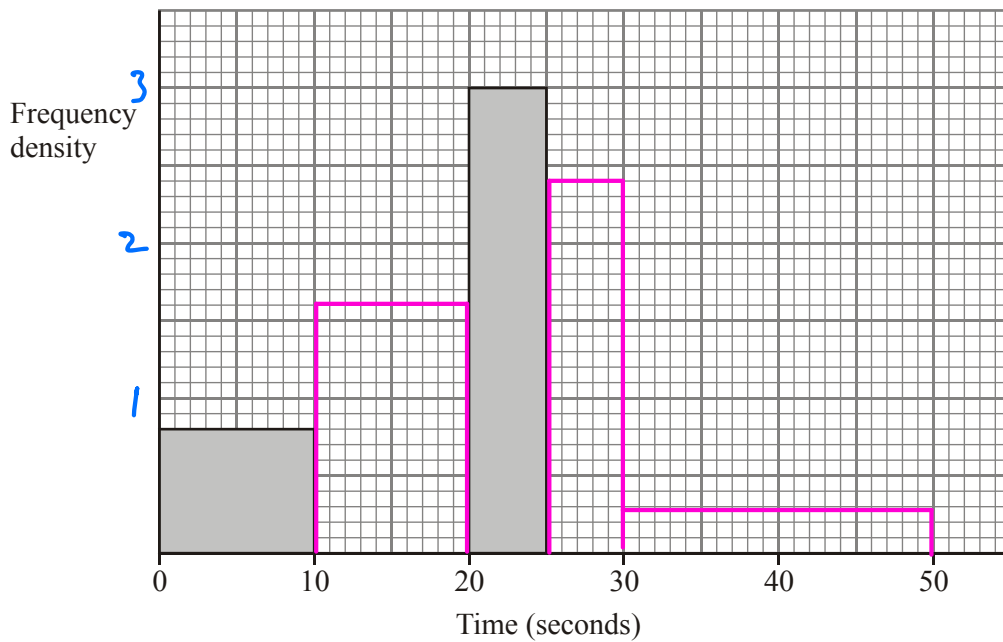
$$FD = 16 \div 10 = 1.6$$

$$FD = 15 \div 5 = 3$$

$$FD = 12 \div 5 = 2.4$$

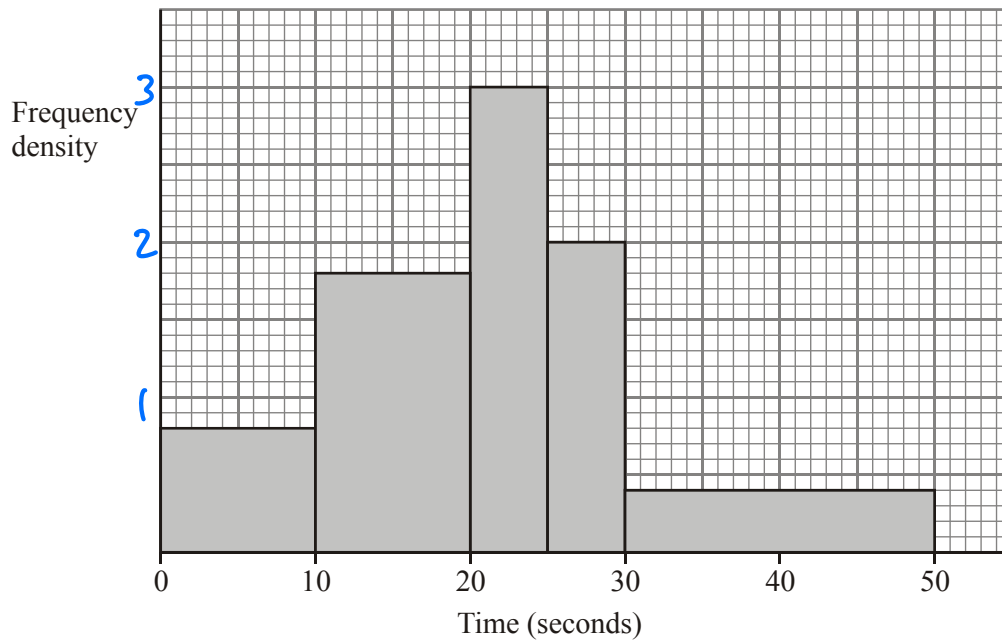
$$FD = 6 \div 20 = 0.3$$

- (a) Use the table to complete the histogram.



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

(3)



results.

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

Time ( $t$ seconds)	Frequency
$0 < t \leq 10$	8
$10 < t \leq 20$	18
$20 < t \leq 25$	15
$25 < t \leq 30$	10
$30 < t \leq 50$	8

$$\text{Freq} = 10 \times 1.8$$

$$\text{Freq} = 5 \times 3$$

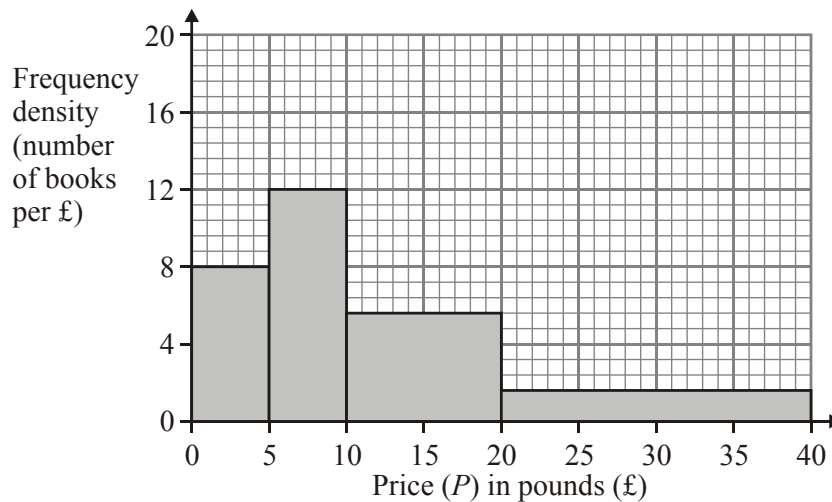
$$\text{Freq} = 5 \times 2$$

$$\text{Freq} = 20 \times 0.4$$

$$FD = 8 \div 10 = 0.8$$

(2)  
(Total 5 marks)

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



- (a) Use the histogram to complete the table.

$5 \times 8$   
 $5 \times 12$   
 $10 \times 5.6$   
 $20 \times 1.6$

Price ( $P$ ) in pounds (£)	Frequency
$0 < P \leq 5$	40
$5 < P \leq 10$	60
$10 < P \leq 20$	56
$20 < P \leq 40$	32

This is a poorly chosen F.D. scale

4 units = 5 boxes

so each box =  $\frac{4}{5} = 0.8$  units

(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

FD

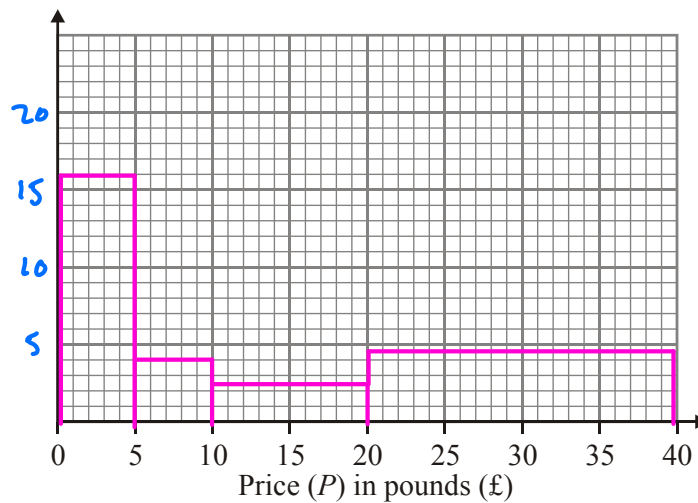
$80 \div 5 = 16$

$20 \div 5 = 4$

$24 \div 10 = 2.4$

$96 \div 20 = 4.8$

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



(3)

(Total 5 marks)

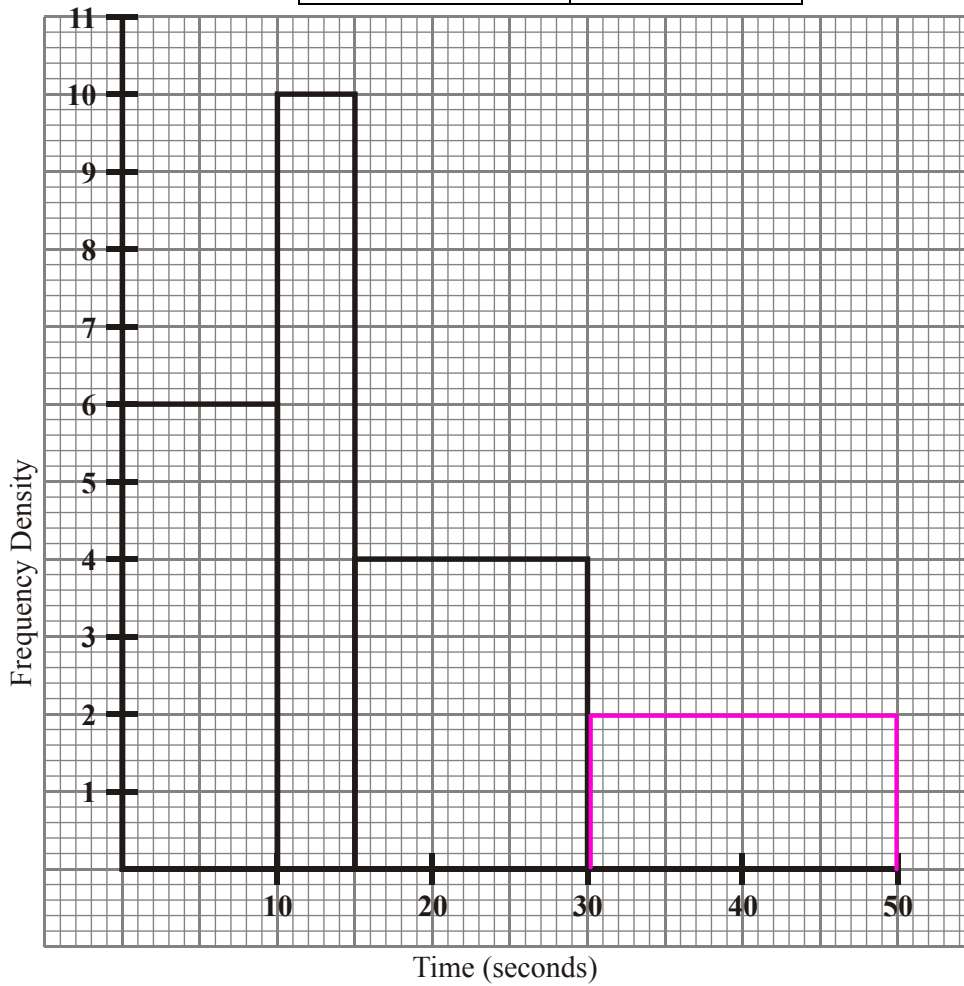
5. George conducted a survey about the journey time, in minutes, of students getting to his school.

The results are summarised in the incomplete table below and shown on the incomplete histogram below.

Time (minutes)	Frequency
0 to less than 10	60
10 to less than 15	50
15 to less than 30	60
30 to less than 50	40

$5 \times 10$

$Fd = 40 \div 20 = 2$



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

(1)

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

(Total 2 marks)