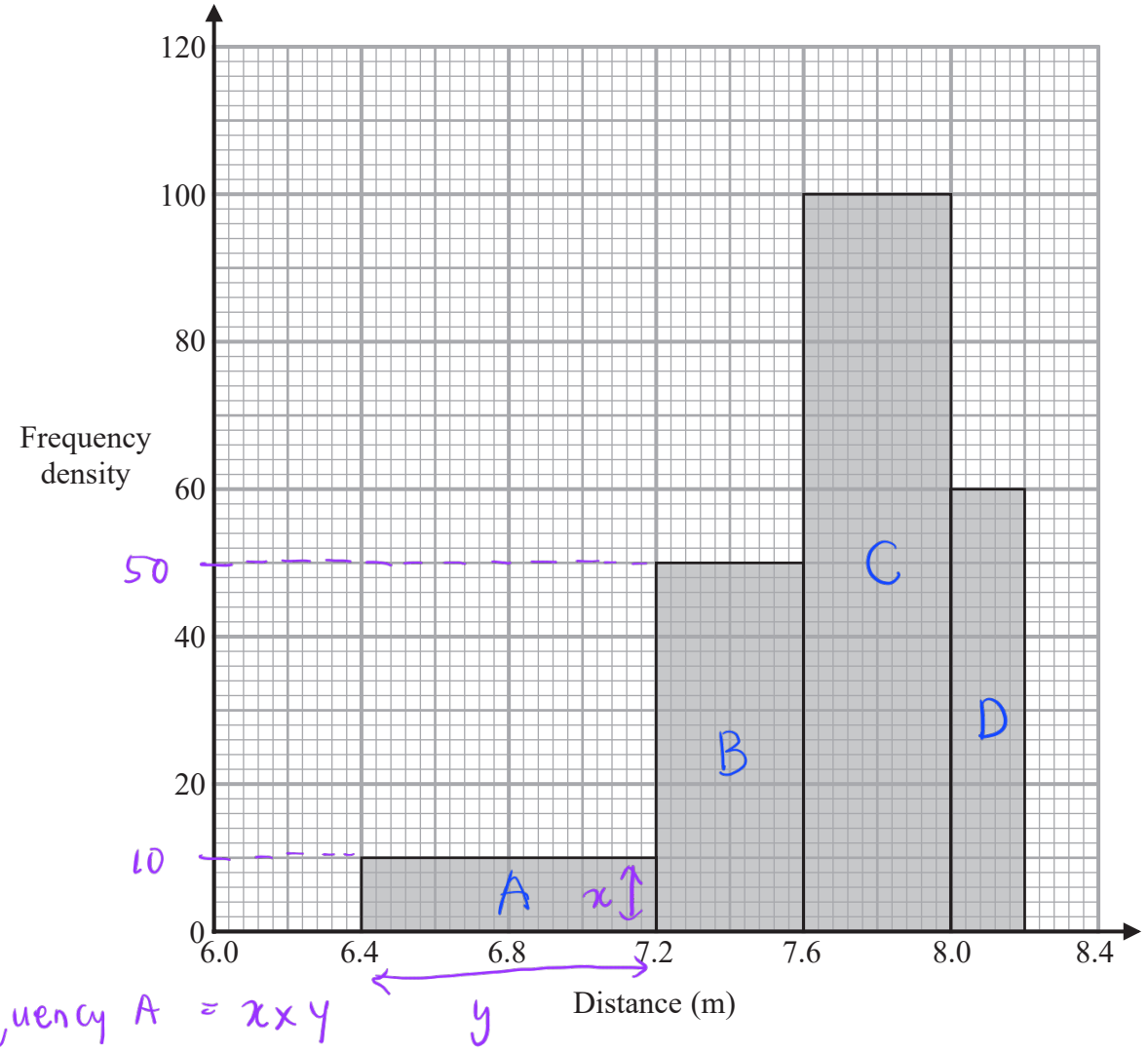
1 The histogram gives information about the distances 80 competitors jumped in a long jump competition.



Frequency A = x × y

Calculate an estimate for the mean distance.

Frequency A = (7.2 − 6.4)(10) = 8 (1)

Frequency B = (7.6 − 7.2)(50) = 20

Frequency C = (8.0 − 7.6)(100) = 40

Frequency D = (8.2 − 8.0)(60) = 12 (1)

Mean distance = $\frac{(8 \times 6.8) + (20 \times 7.4) + (40 \times 7.8) + (12 \times 8.1)}{80}$ (1)

mean distance = $\frac{\Sigma(\text{midpoint} \times \text{frequency})}{\text{Total frequency}}$

$= \frac{611.6}{80}$

$= 7.645$ (1)

7.645

..... m

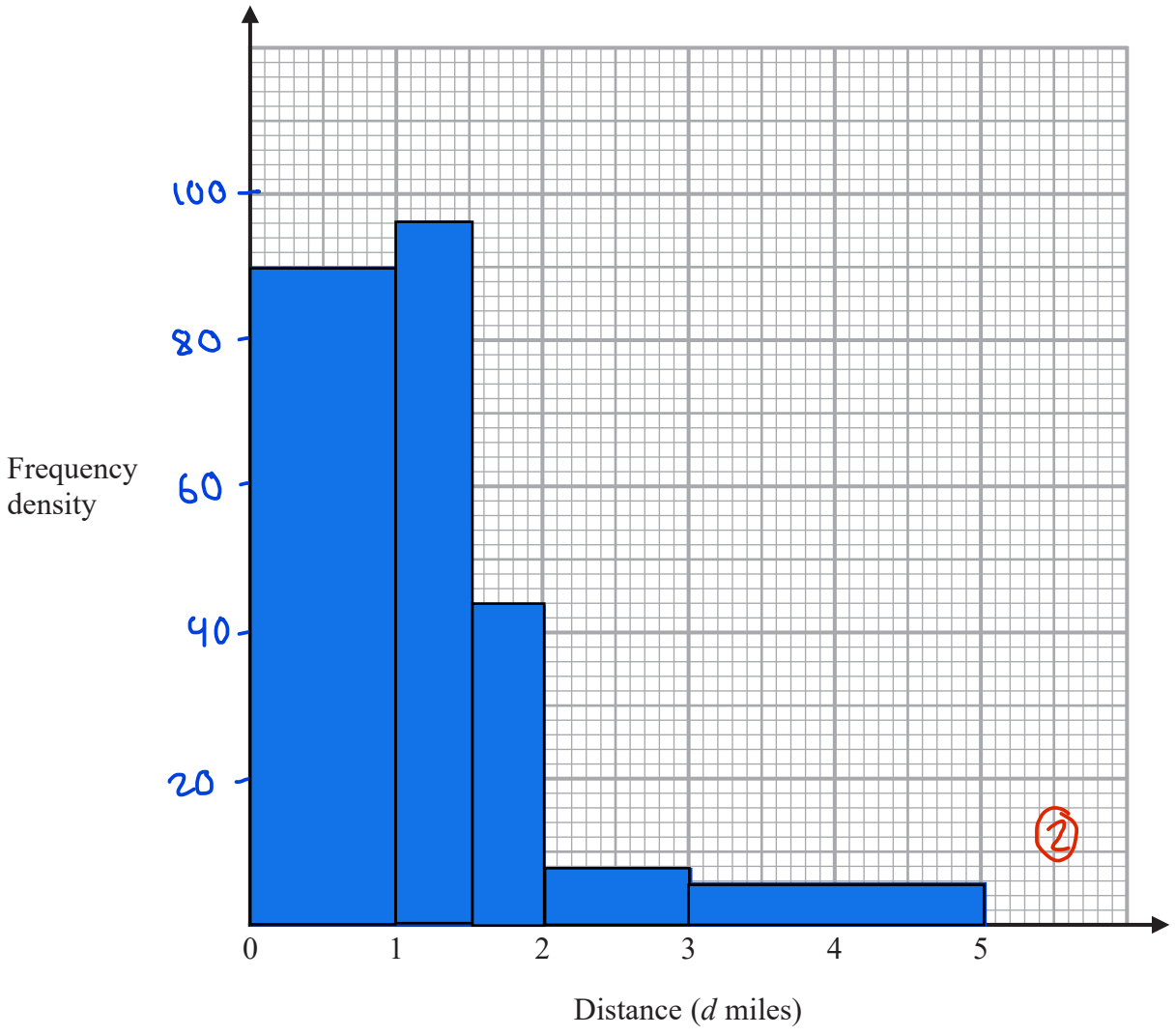
(Total for Question 1 is 4 marks)

2 The table gives information about the distances, in miles, that some Year 10 students live from school.

Frequency = f.d. × c.w.
⇒ f.d. = frequency / c.w.

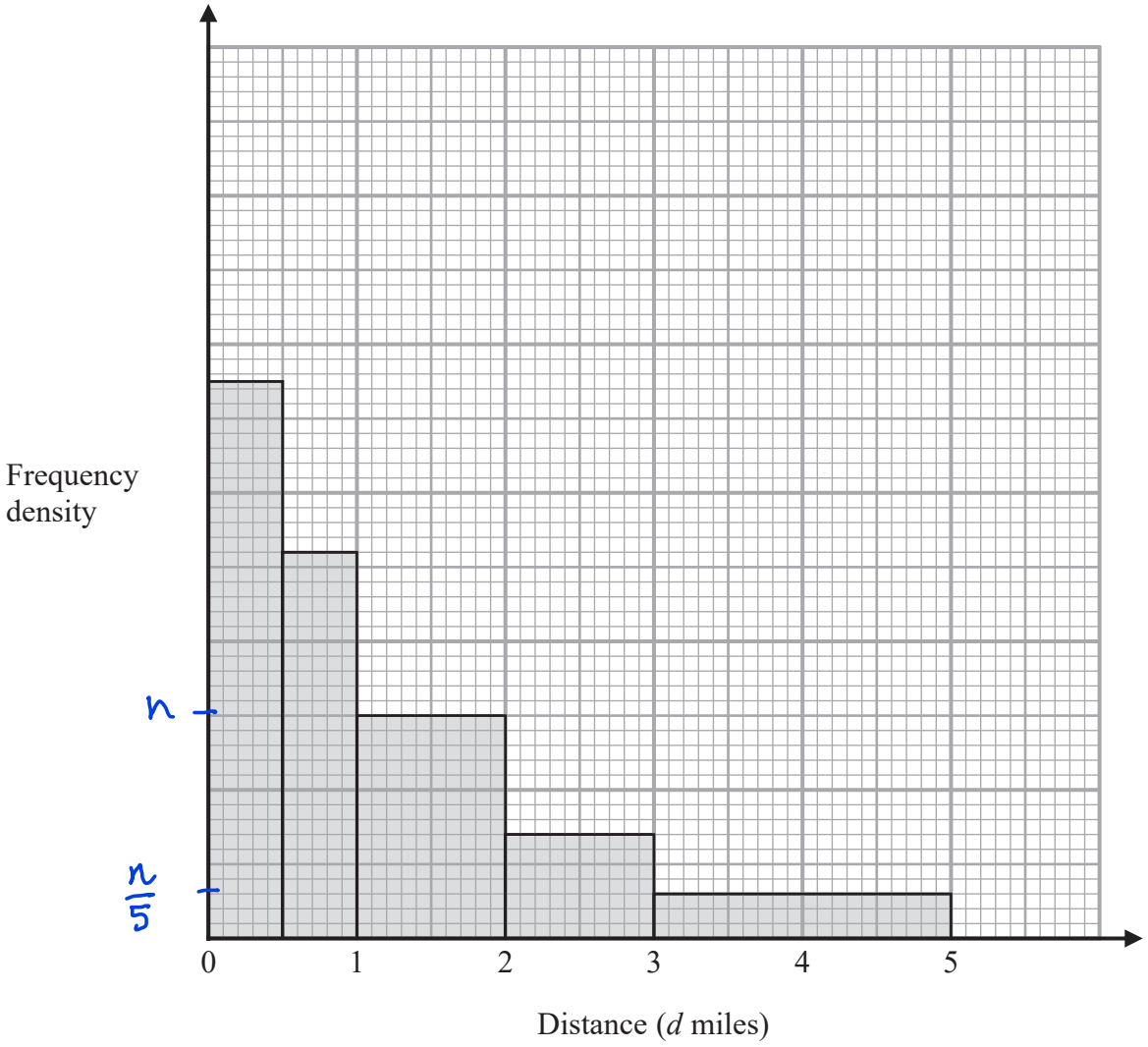
Distance (d miles)	Frequency	c.w.	f.d. ①
$0 < d \leqslant 1.0$	90	1	90
$1.0 < d \leqslant 1.5$	48	0.5	96
$1.5 < d \leqslant 2.0$	22	0.5	44
$2.0 < d \leqslant 3.0$	8	1	8
$3.0 < d \leqslant 5.0$	12	2	6

(a) On the grid, draw a histogram for this information.



(3)

The histogram below shows information about the distances, in miles, that some Year 11 students live from school.



The number of Year 11 students who live between 1 and 2 miles from school is n.

(b) Find an expression, in terms of n, for the number of Year 11 students who live between 3 and 5 miles from school.

1 - 2 mile group:
has class width 1
has frequency n
$\Rightarrow$ freq. density $= \frac{n}{1} = n$

3 - 5 mile group:
has class width 2

Find freq. density of 3-5 group:
n : 15 squares $\downarrow \div 5$
$n/5$: 3 squares (1)
$\therefore$ freq. density $= \frac{n}{5}$
frequency $= \frac{n}{5} \times 2 = 0.4n$

(1)

$0.4n$

(2)

(Total for Question 2 is 5 marks)

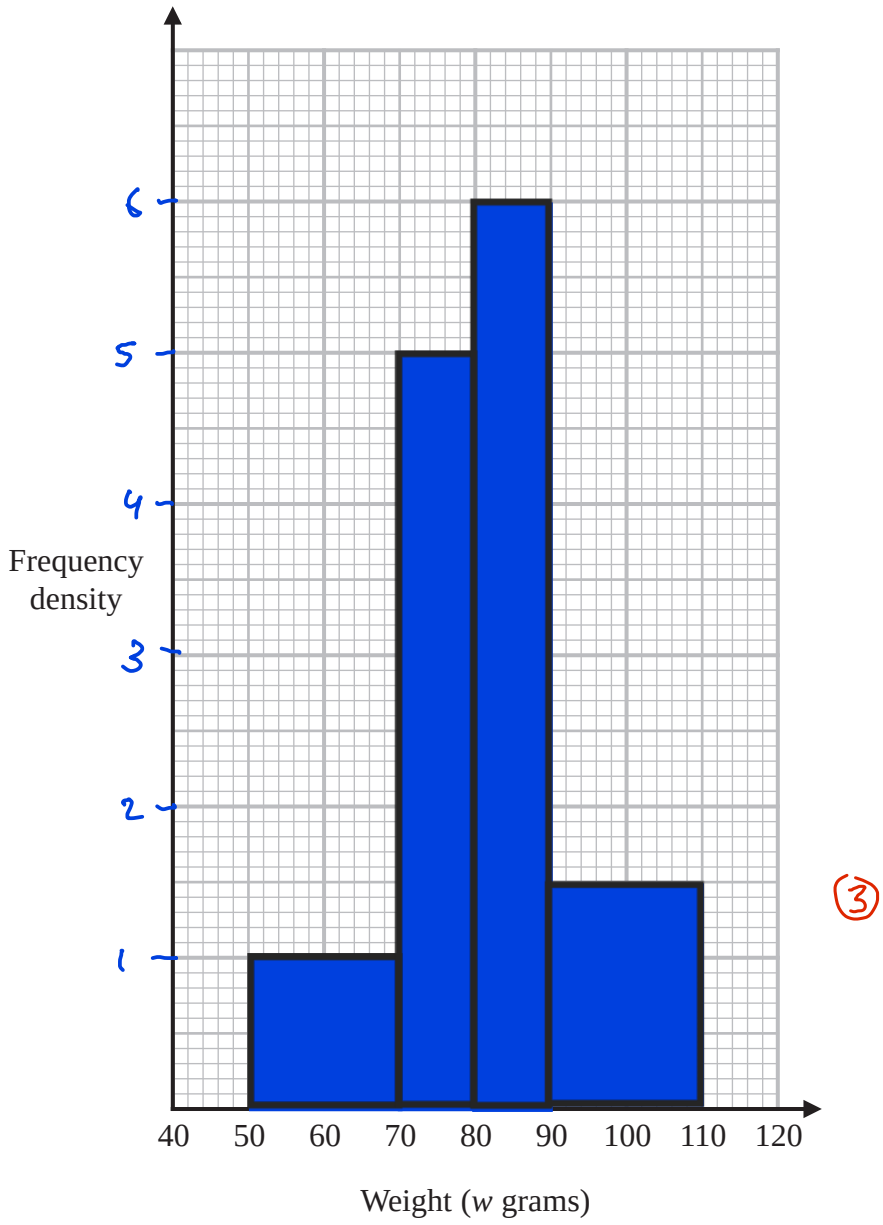
3 The table shows information about the weights, in grams, of some potatoes.

Weight (w grams)	Number of potatoes
$50 < w \leqslant 70$	20
$70 < w \leqslant 80$	50
$80 < w \leqslant 90$	60
$90 < w \leqslant 110$	30

class width: 20, 10, 10, 20

frequency density: 20 ÷ 20 = 1; 50 ÷ 10 = 5; 60 ÷ 10 = 6; 30 ÷ 20 = 1.5

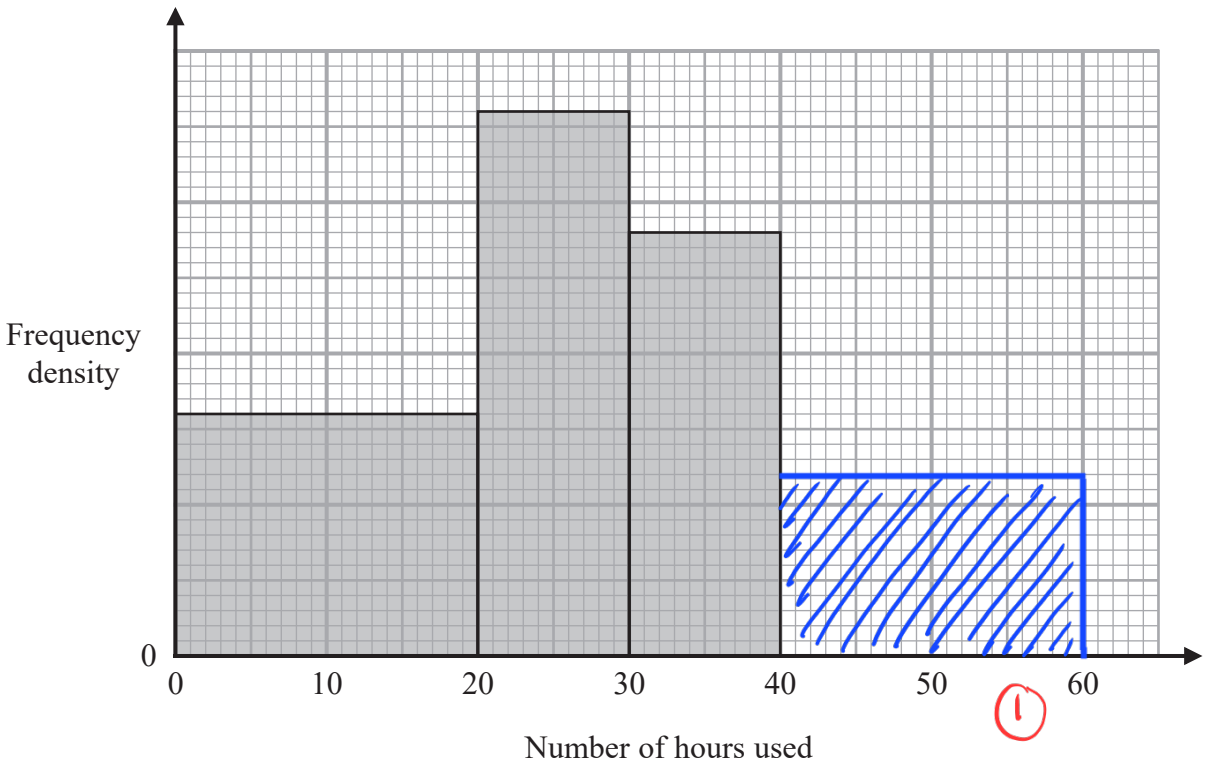
On the grid, draw a histogram for this information.



(3)

(Total for Question 3 is 3 marks)

4 The histogram gives information about the number of hours some students used their phones last week.
The histogram is incomplete.



28 students used their phones for between 30 and 40 hours.
24 students used their phones for between 40 and 60 hours.

(a) Use this information to complete the histogram.

$28 \div 10 = 2.8$ (1)
$24 \div 20 = 1.2$

1 small box = 0.1
1.2 is equivalent to 12 small box

(2)

No student used their phone for more than 60 hours.

(b) Work out the total number of students.

$1.6 \times 20 = 32$
$3.6 \times 10 = 36$

Frequency = Frequency density x class interval

(1)

Total number of students = $32 + 36 + 28 + 24$
$= 120$

120 (1)

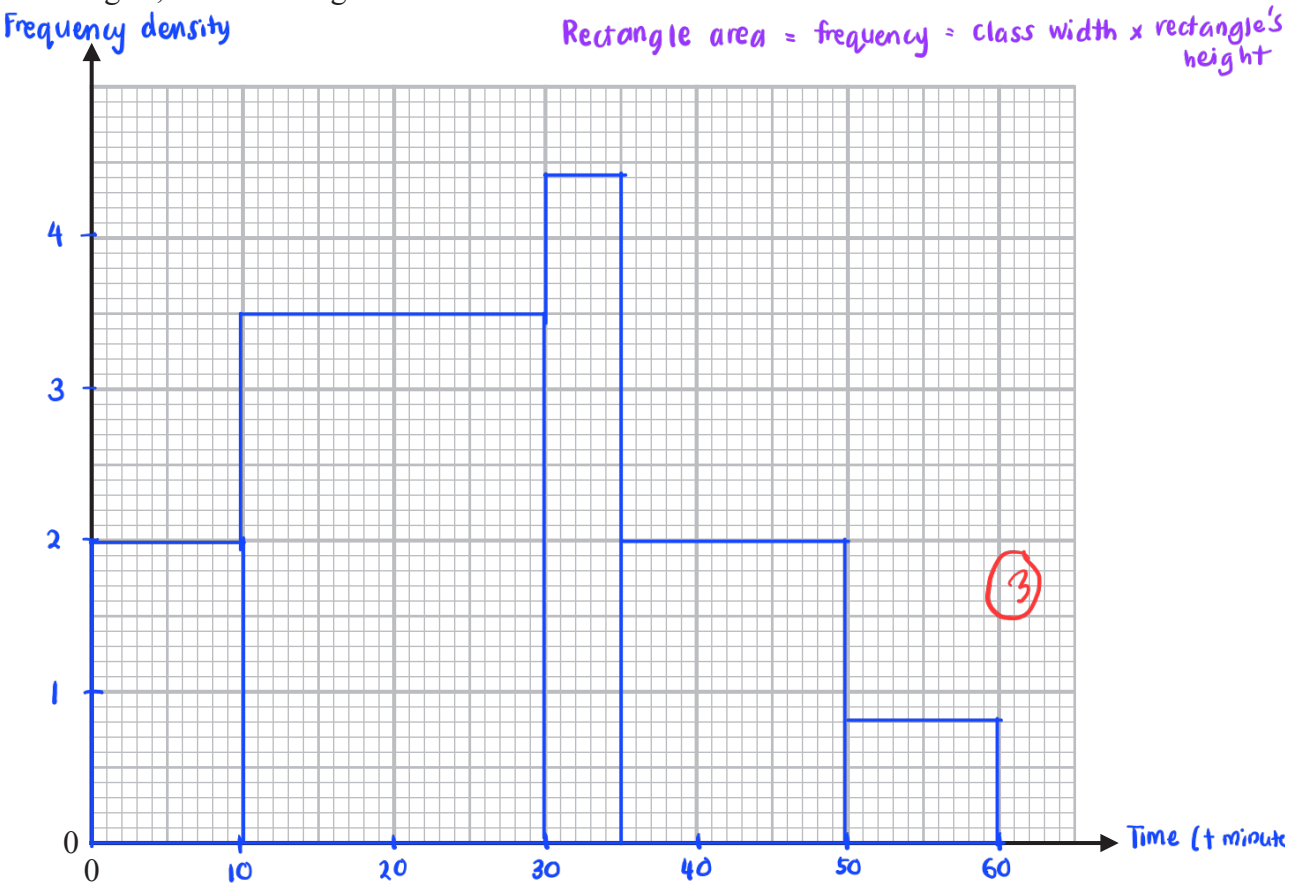
(2)

(Total for Question 4 is 4 marks)

5 The table gives information about the amount of time that each of 150 people were in a shop.

Class width	Time (t minutes)	Frequency	Rectangle's height
10	$0 < t \leqslant 10$	20	$20 \div 10 = 2$
20	$10 < t \leqslant 30$	70	$70 \div 20 = 3.5$
5	$30 < t \leqslant 35$	22	$22 \div 5 = 4.4$
15	$35 < t \leqslant 50$	30	$30 \div 15 = 2$
10	$50 < t \leqslant 60$	8	$8 \div 10 = 0.8$

(a) On the grid, draw a histogram for this information.



(3)

(b) Work out an estimate for the fraction of these 150 people who were in the shop for between 20 minutes and 40 minutes.

Estimation :

$20 < t \leqslant 30 = \frac{1}{2} \times 70 = 35$

$30 < t \leqslant 35 = 22$ (1)

$35 < t \leqslant 40 = \frac{1}{3} \times 30 = 10$

Total = $35 + 22 + 10$

= 67 out of 150

= $\frac{67}{150}$ (1)

$\frac{67}{150}$

(2)

(Total for Question 5 is 5 marks)