

Name: _____

Exam Style Questions



Histograms

Corbettmaths

Ensure you have: Pencil, pen, ruler, protractor, pair of compasses and eraser

You may use tracing paper if needed

Guidance

1. Read each question carefully before you begin answering it.
2. Don't spend too long on one question.
3. Attempt every question.
4. Check your answers seem right.
5. Always show your workings

Revision for this topic

www.corbettmaths.com/contents

Video 157

Video 158

Video 159

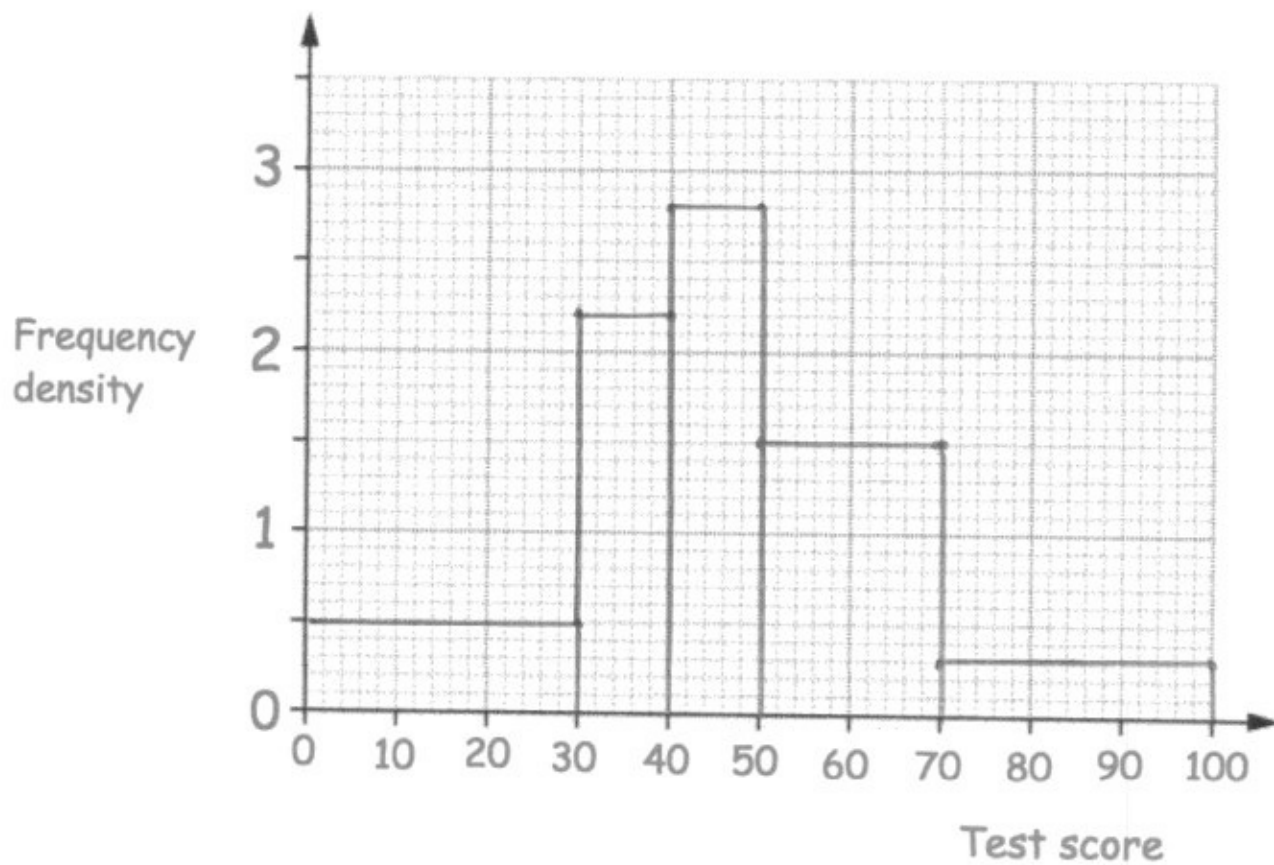


1. The test scores from the students in a school are summarised in the table.

Test score, x	Frequency
$0 < x \leq 30$	15
$30 < x \leq 40$	22
$40 < x \leq 50$	28
$50 < x \leq 70$	30
$70 < x \leq 100$	9

frequency density
0.5
2.2
2.8
1.5
0.3

Draw a histogram for this data.



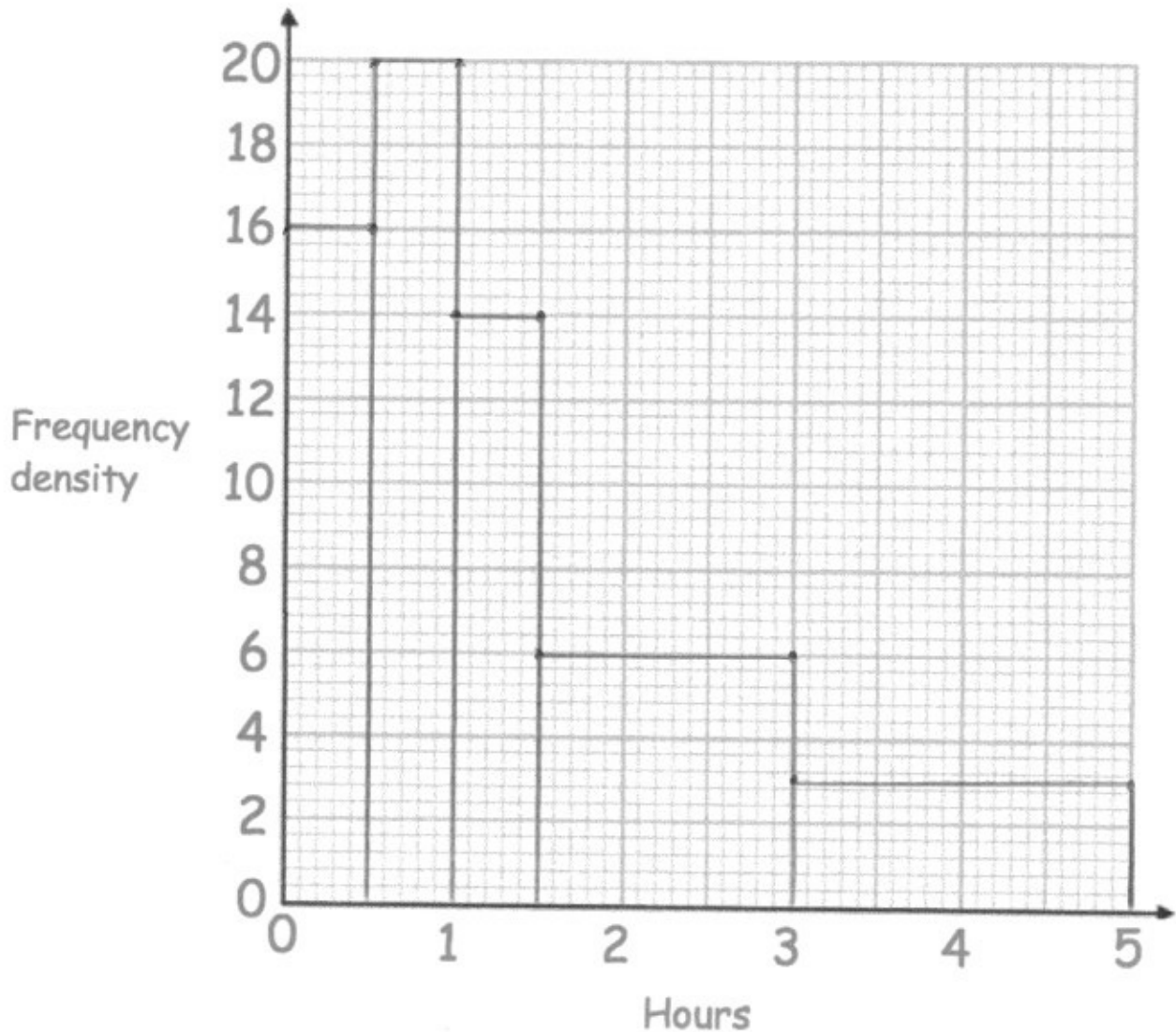
(3)

2. The waiting times, h hours, for 40 patients at an accident and emergency department in one evening is shown below.

Waiting time, h	Frequency
$0 < h \leq 0.5$	8
$0.5 < h \leq 1$	10
$1 < h \leq 1.5$	7
$1.5 < h \leq 3$	9
$3 < h \leq 5$	6

frequency density
 16
 20
 14
 6
 3

Draw a histogram for this data.



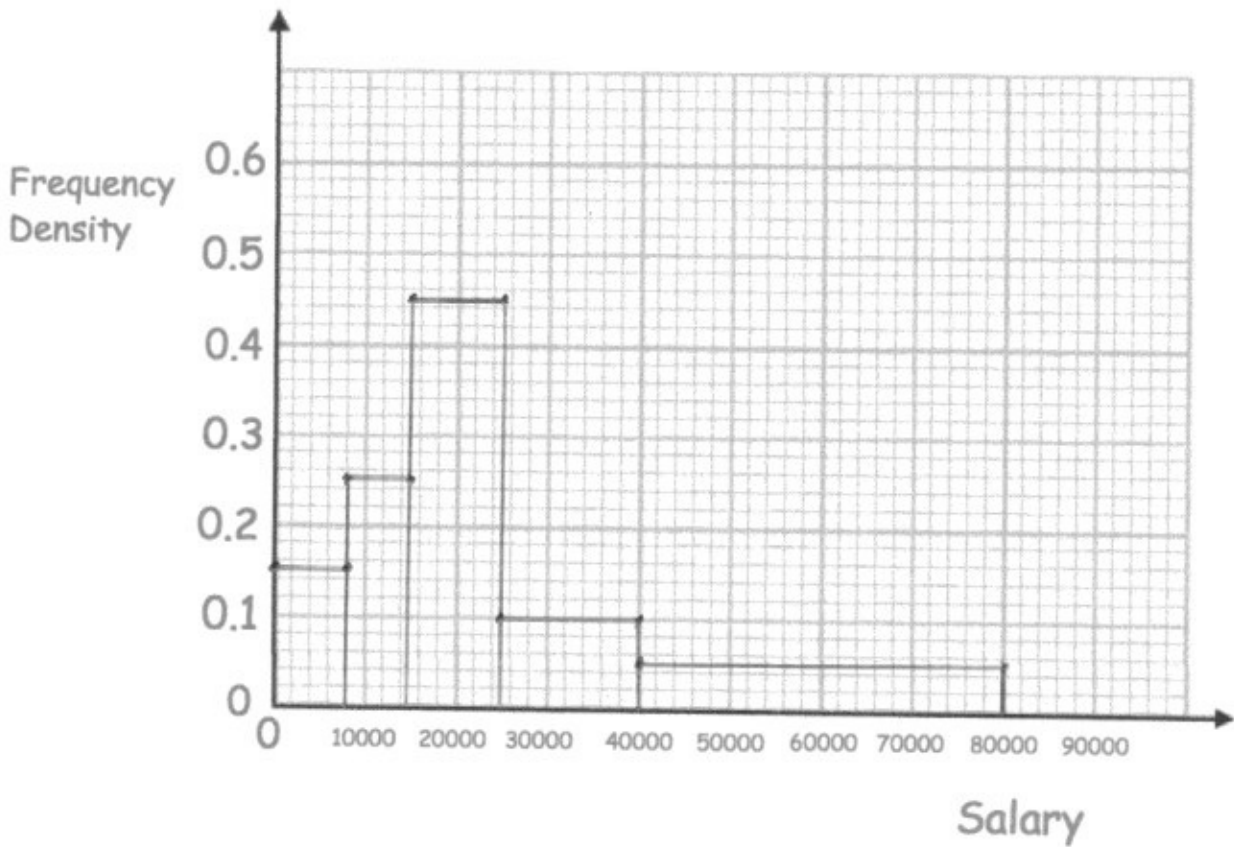
(3)

3. The salaries, p pounds, of 10950 people in a town is shown below.

Salary, p	Frequency
$0 < p \leq 8000$	1200
$8000 < p \leq 15000$	1750
$15000 < p \leq 25000$	4500
$25000 < p \leq 40000$	1500
$40000 < p \leq 80000$	2000

frequency density
 0.15
 0.25
 0.45
 0.1
 0.05

Draw a histogram for this data.



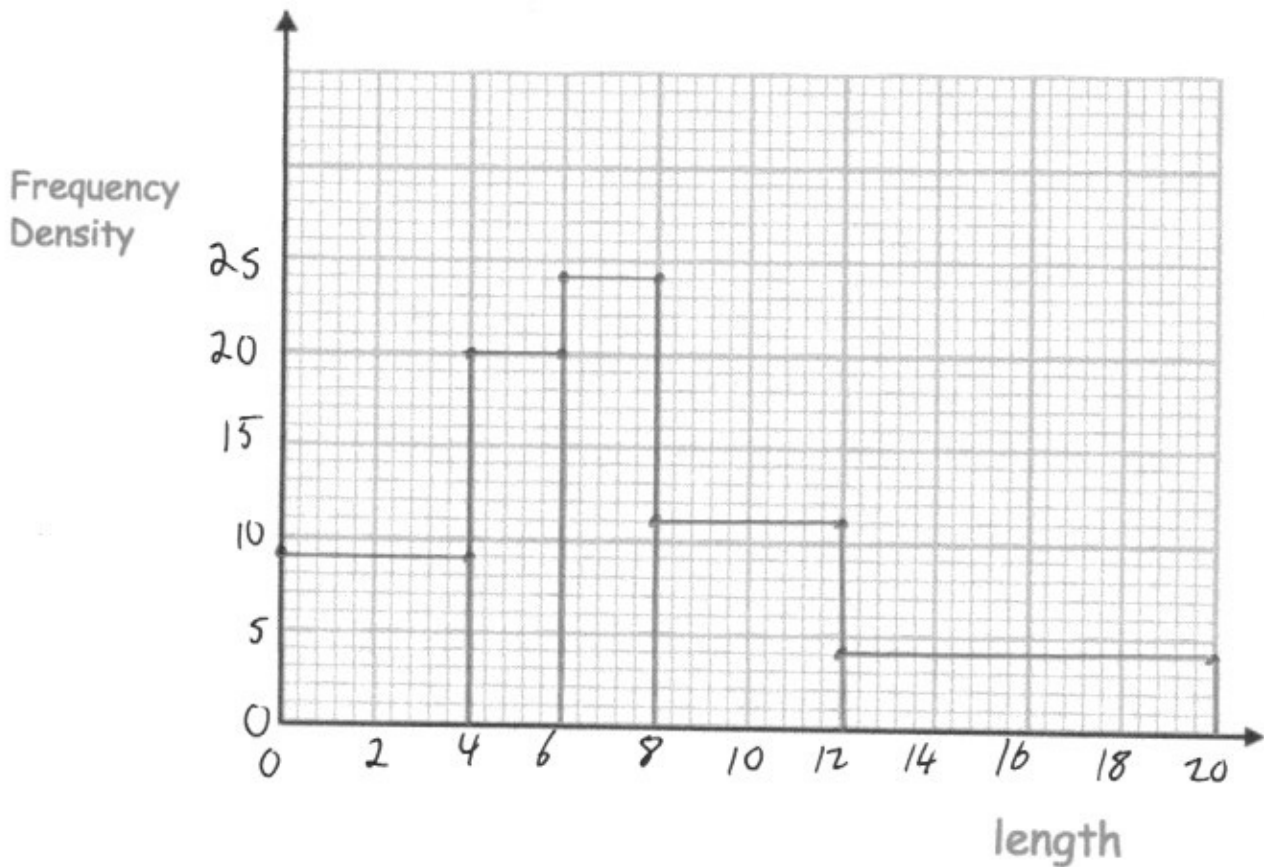
(3)

4. The lengths of 200 fish in a pond, l centimetres, are recorded below.

Length, l	Frequency
$0 < l \leq 4$	36
$4 < l \leq 6$	40
$6 < l \leq 8$	48
$8 < l \leq 12$	44
$12 < l \leq 20$	32

frequency density
 9
 20
 24
 11
 4

Draw a histogram for this data.



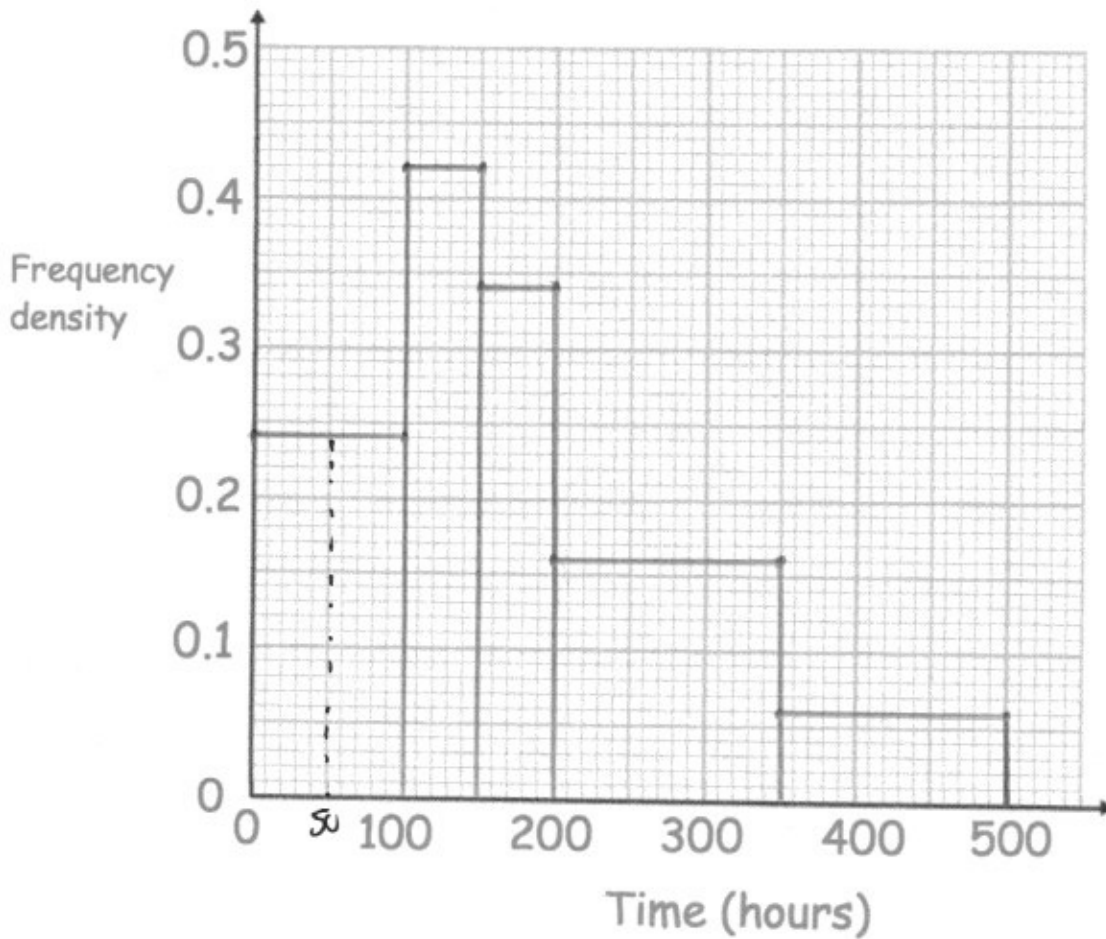
(3)

5. The table gives information about the hours Easyair pilots have spent flying, t hours.

Time (t hours)	Frequency
$0 < t \leq 100$	24
$100 < t \leq 150$	21
$150 < t \leq 200$	17
$200 < t \leq 350$	24
$350 < t \leq 500$	9

frequency density
 0.24
 0.42
 0.34
 0.16
 0.06

- (a) Draw a histogram to show this information.



(3)

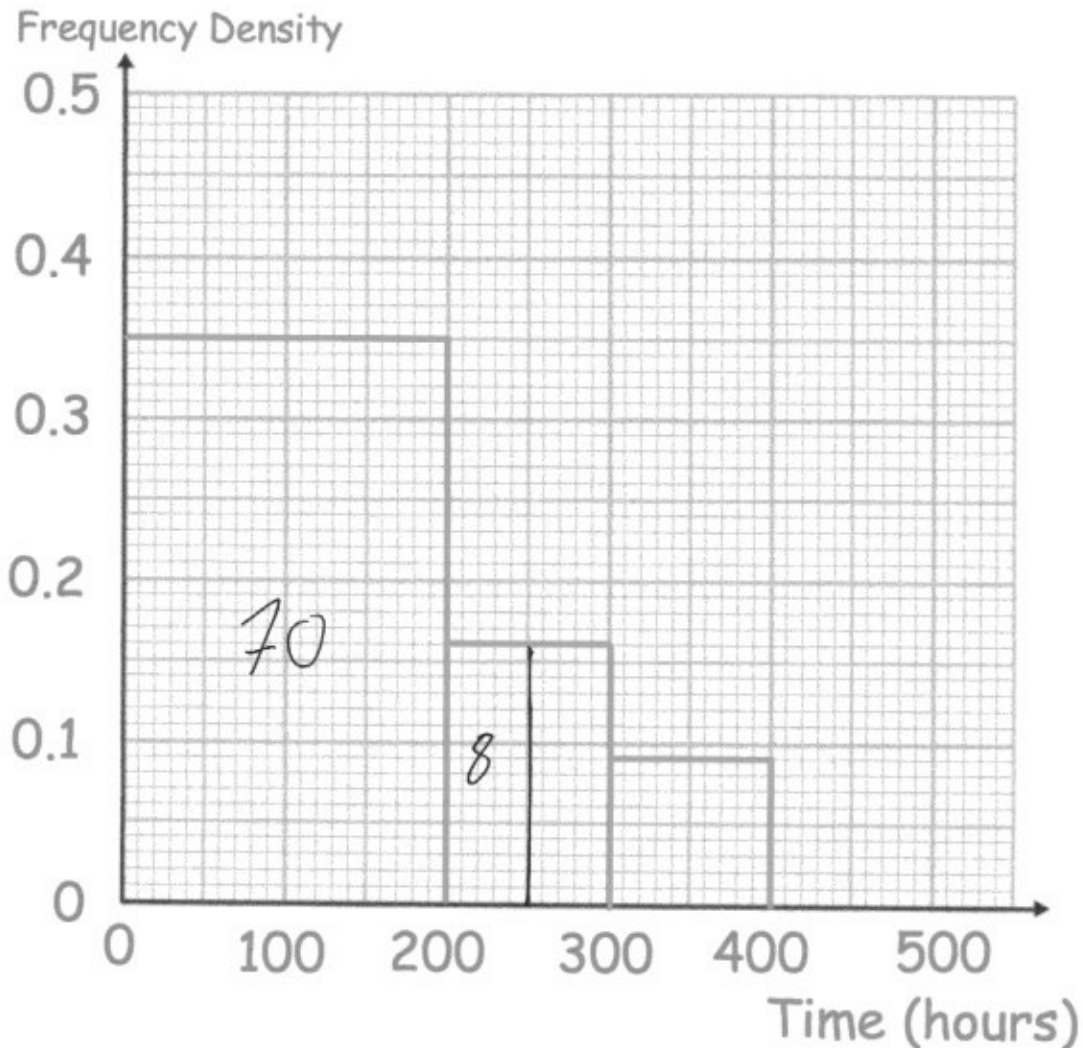
- (b) Estimate the number of Easyair pilots who have flown under 50 hours.

$$24 \div 2 = 12$$

$$\begin{array}{r} 12 \\ \hline \end{array}$$

(1)

The histogram shows the distribution of time spent flying by Ryanjet pilots.



(c) Estimate the number of pilots who have flown under 250 hours.

$$200 \times 0.35 = 70$$

$$50 \times 0.16 = 8$$

78

(2)

(d) Make one comparison between the distribution of time spent flying by pilots from Easyair and Ryanjet.

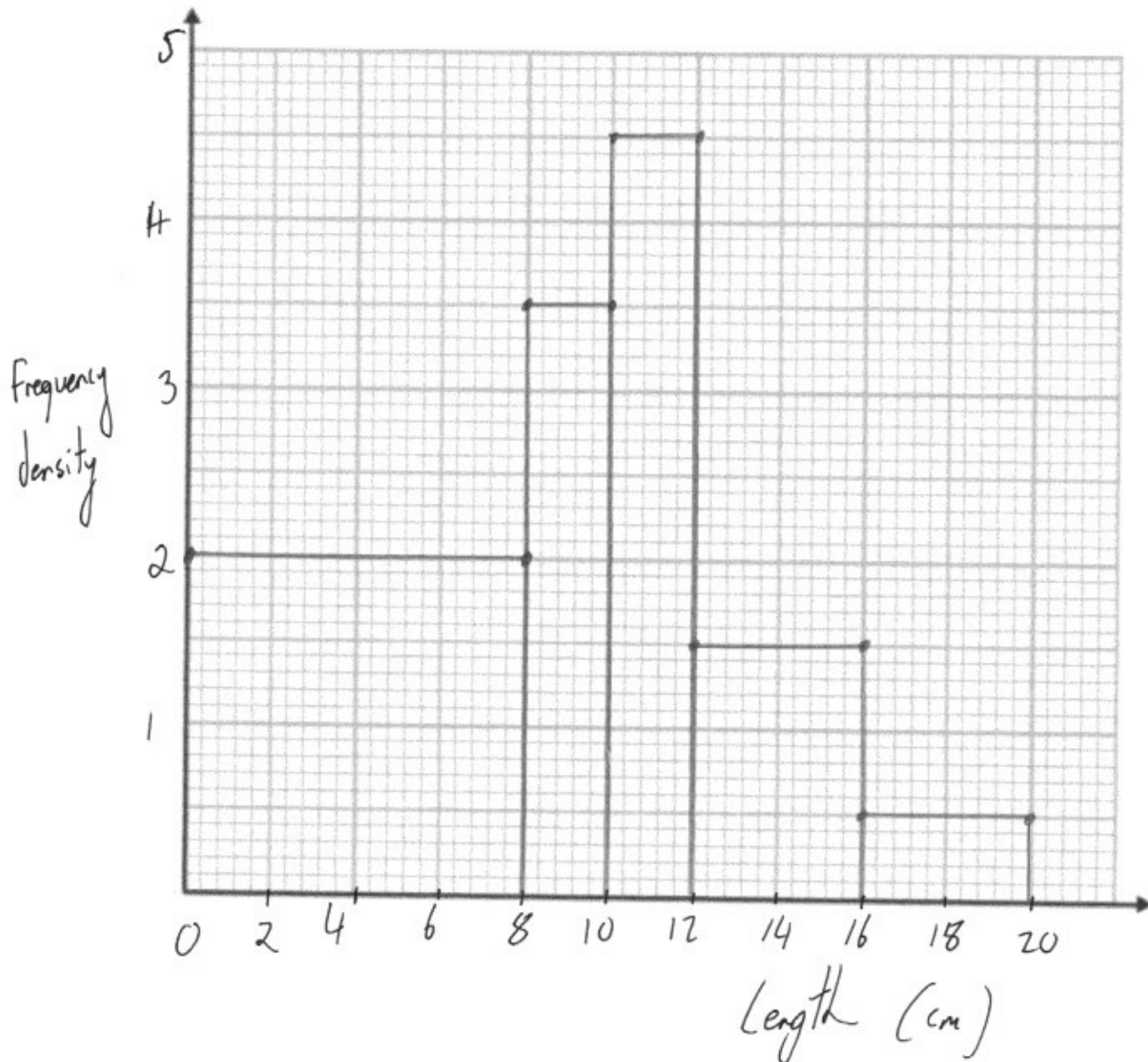
Easyair pilots have spent more time flying
 - they only have 62 pilots that have flown under 200 hours, compared to 70 from Ryanjet.
 - Easyair have 33 pilots who have flown over 200 hours, compared to 25 from Ryanjet.
 - Easyair may have pilots who flew over 400 hours.

6. The table gives information about the lengths, l metres, of fish in a pond.

length (l cm)	Frequency
$0 < l \leq 8$	16
$8 < l \leq 10$	7
$10 < l \leq 12$	9
$12 < l \leq 16$	6
$16 < l \leq 20$	2

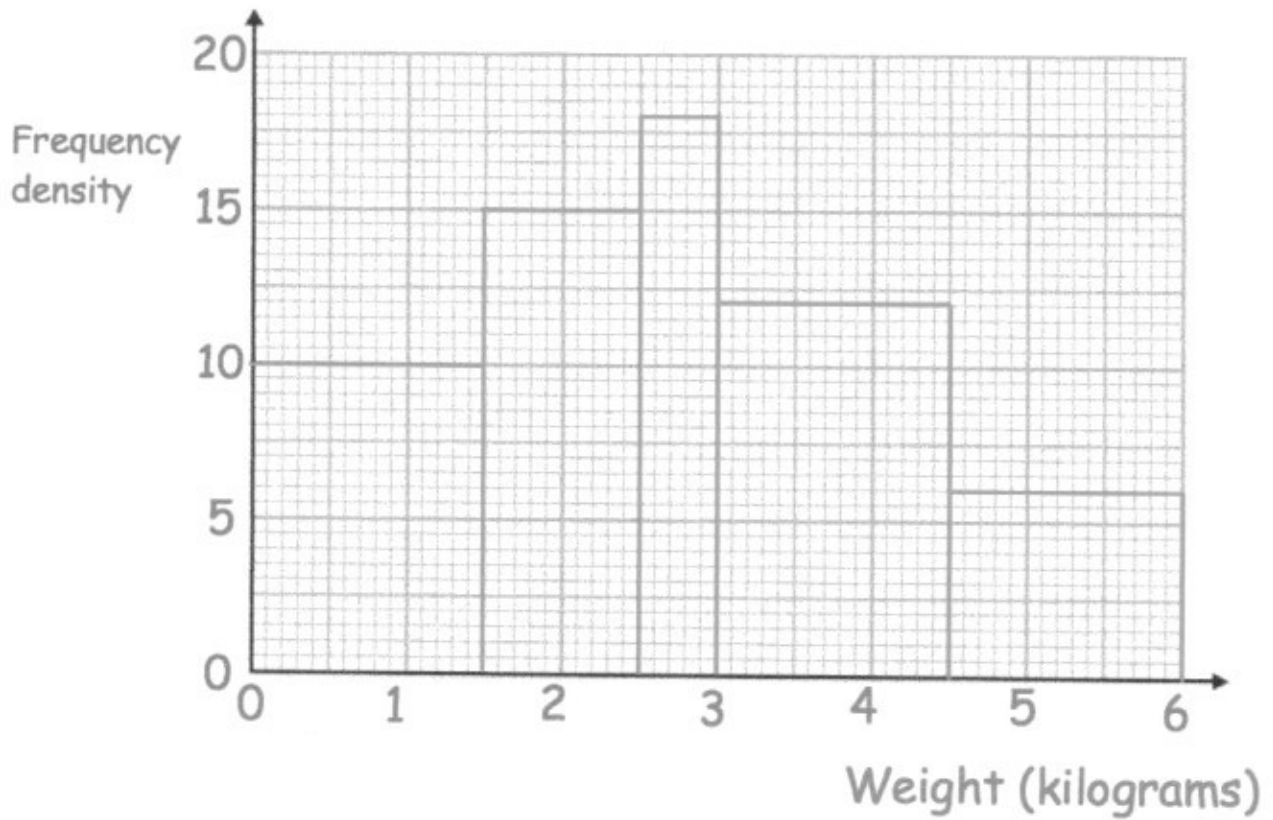
frequency density
 2
 3.5
 4.5
 1.5
 0.5

Draw a histogram to show this information.



(3)

7. Below is a histogram showing information about the weight of parcels.



Use the histogram to complete the frequency table.

Weight, w	Frequency
$0 < w \leq 1.5$	15
$1.5 < w \leq 2.5$	15
$2.5 < w \leq 3$	9
$3 < w \leq 4.5$	18
$4.5 < w \leq 6$	9

$$1.5 \times 10$$

$$1 \times 15$$

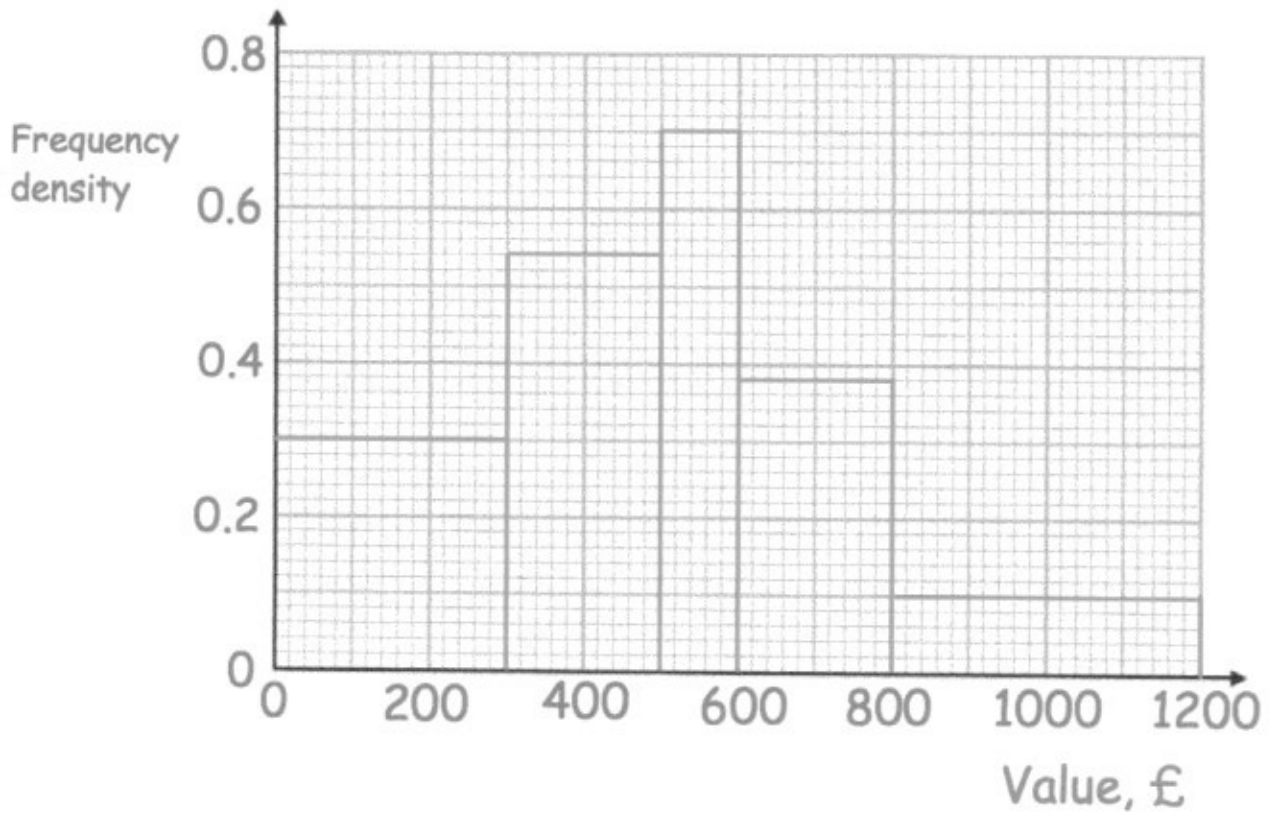
$$0.5 \times 18$$

$$1.5 \times 12$$

$$1.5 \times 6$$

(3)

8. Below is a histogram showing information about the value of antiques.



Use the histogram to complete the frequency table.

Values, v	Frequency
$0 < v \leq 300$	90
$300 < v \leq 500$	108
$500 < v \leq 600$	70
$600 < v \leq 800$	76
$800 < v \leq 1200$	40

$$300 \times 0.3$$

$$200 \times 0.54$$

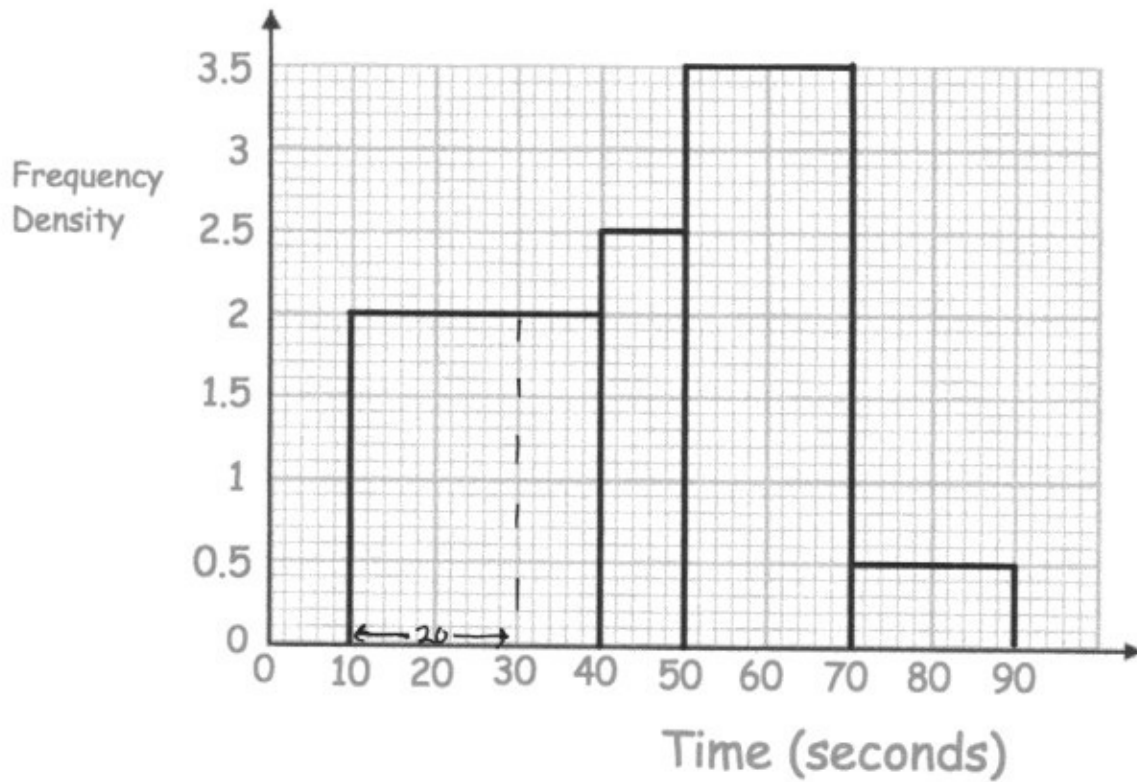
$$100 \times 0.7$$

$$200 \times 0.38$$

$$400 \times 0.1$$

(3)

9. A group of students were asked to complete a puzzle.
The histogram shows the distribution of the times taken.



- (a) Work out how many students took between 50 and 70 seconds to complete the puzzle.

$$20 \times 3.5$$

$$\begin{array}{r} 70 \\ \hline \end{array}$$

(1)

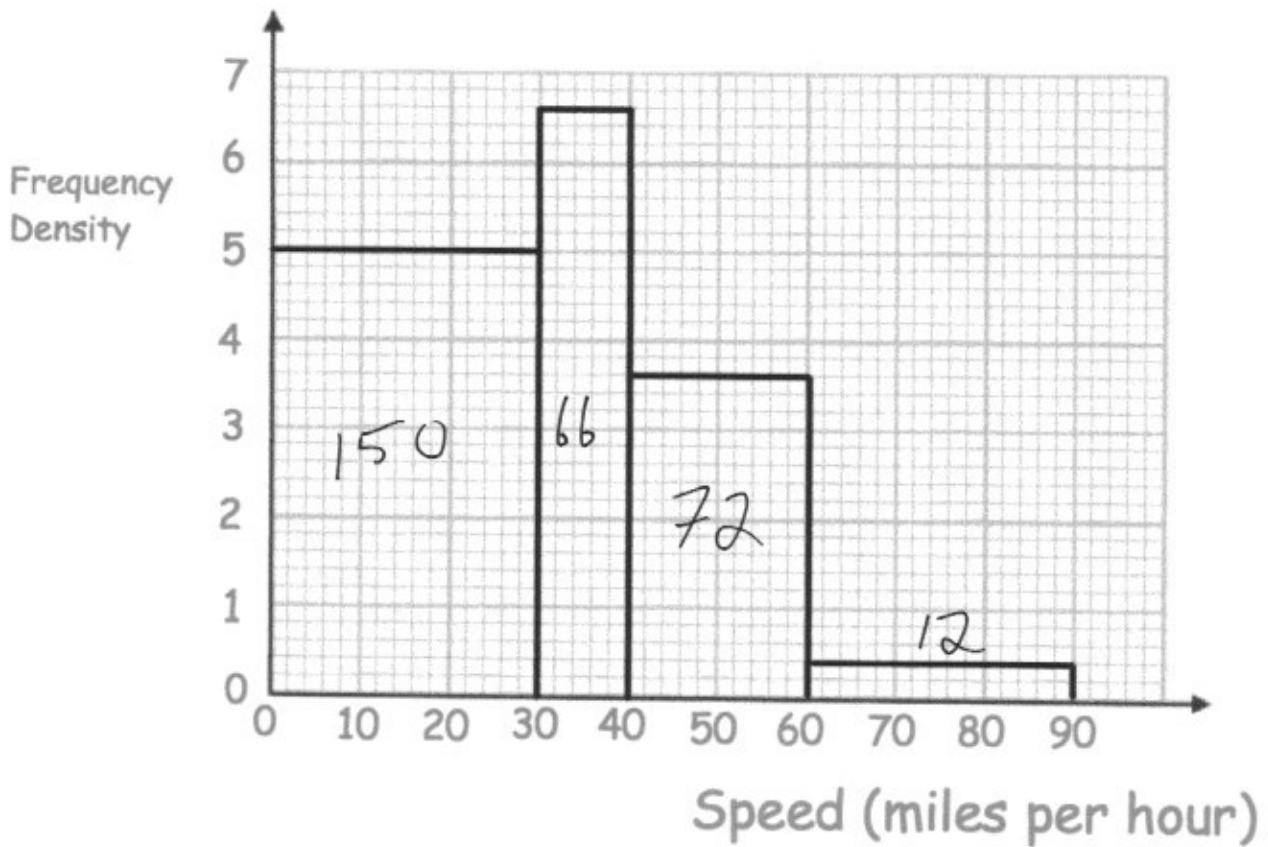
- (b) Calculate an estimate of the number of students who took under 30 seconds to complete the puzzle.

$$20 \times 2$$

$$\begin{array}{r} 40 \\ \hline \end{array}$$

(2)

10. The histogram shows information about the speeds, in miles per hour, that cars travelled through a village. The speed limit is 60mph.



Work out the percentage of cars that were under the speed limit of 60mph.

$$\text{total number of cars} = 300$$

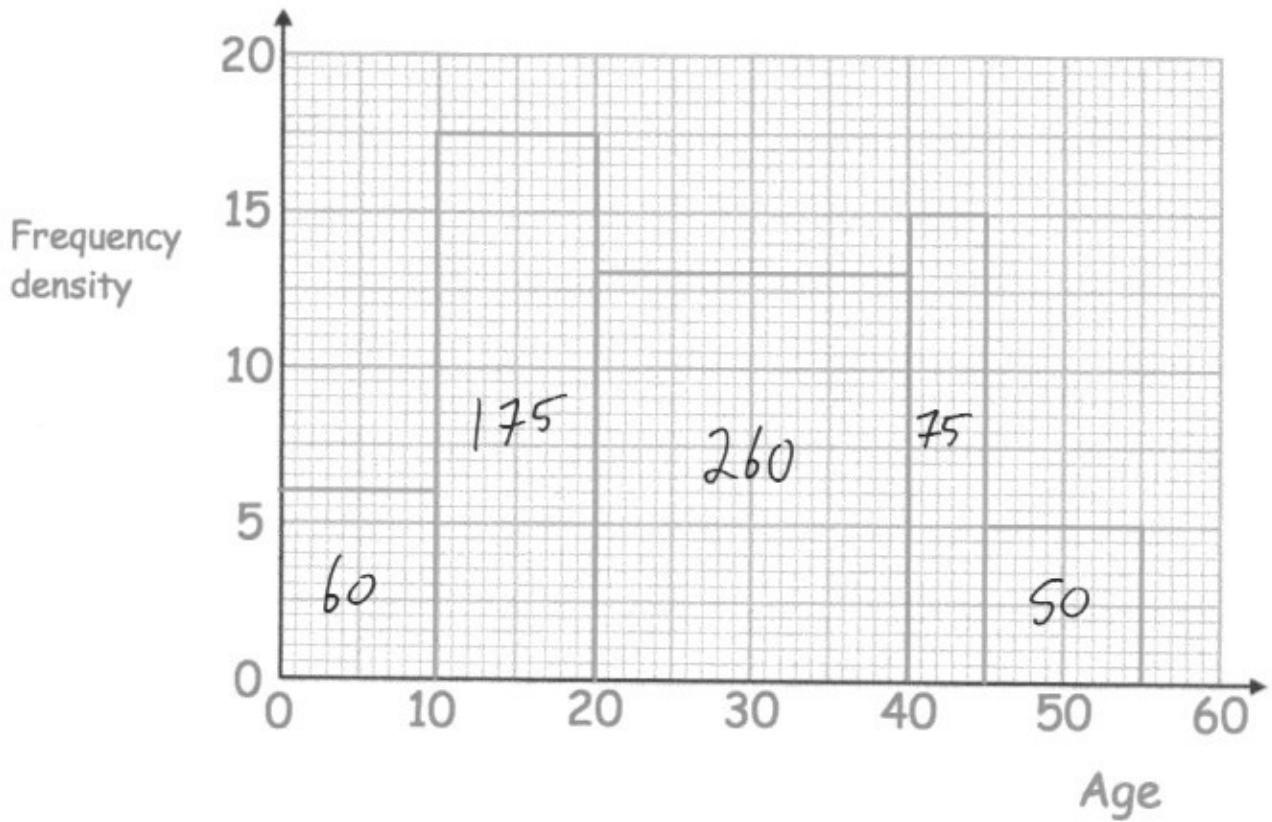
$$\text{Under 60} = 150 + 66 + 72 = 288$$

$$\frac{288}{300} \times 100$$

$$\underline{\underline{96\%}}$$

(3)

11. The histogram shows the ages of visitors to a library on one morning.



What percentage of visitors were over 40 years old?

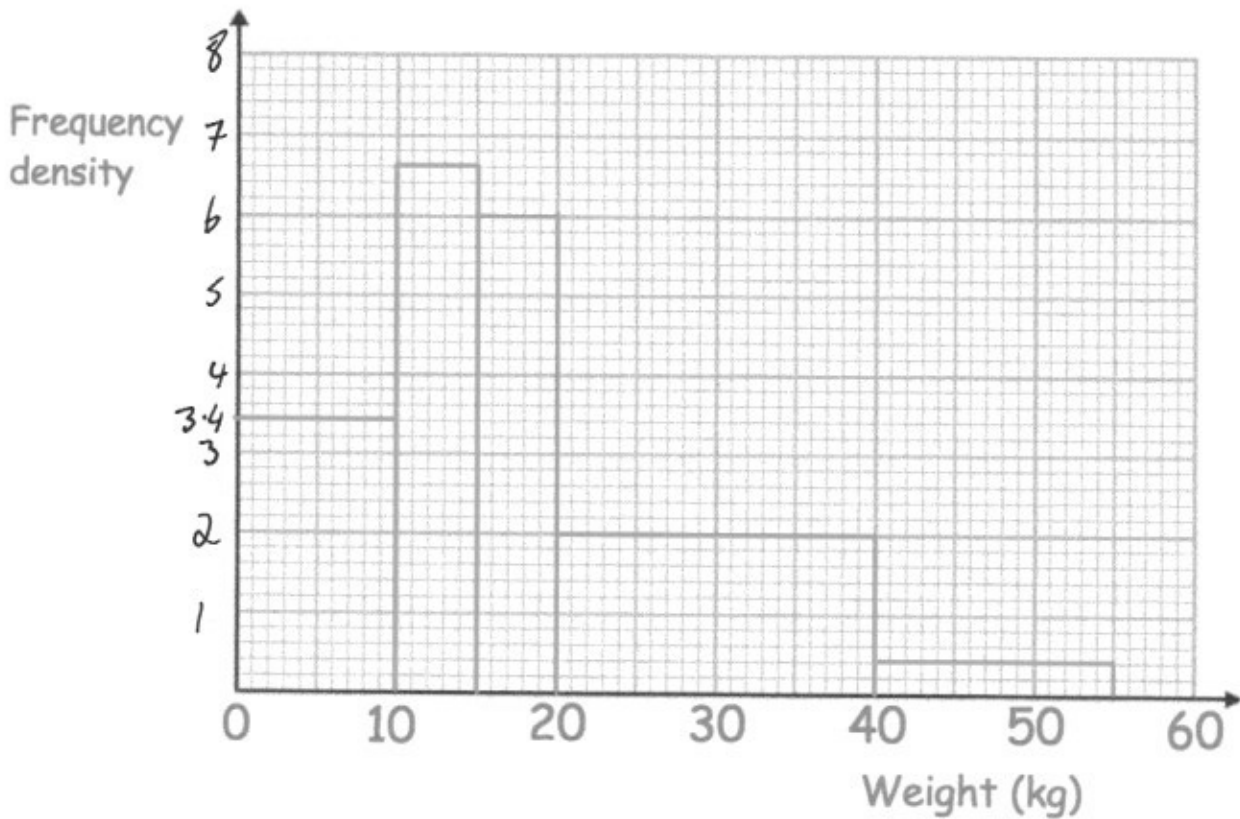
$$\text{Over 40: } 75 + 50 = 125$$

$$\text{total: } 620$$

$$\frac{125}{620} \times 100$$

$$\frac{20.16\%}{(3)}$$

12. The incomplete table and histogram give some information about the weights of dogs.



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

weight (w kg)	Frequency
$0 < w \leq 10$	34
$10 < w \leq 15$	33
$15 < w \leq 20$	30
$20 < w \leq 40$	40
$40 < w \leq 55$	6

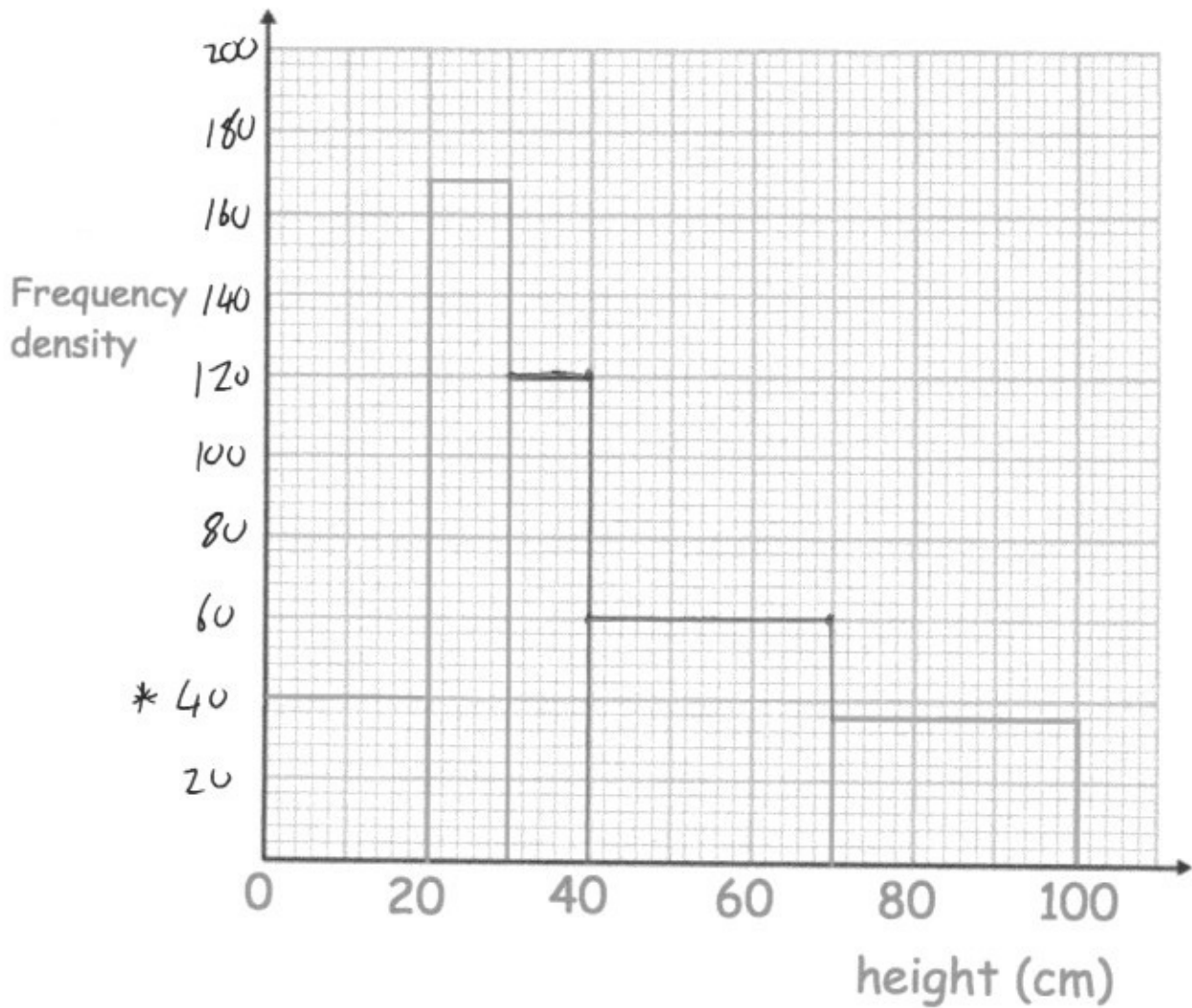
$$10 \times \boxed{3.4} = 34$$

$$5 \times \boxed{6} = 30$$

$$20 \times \boxed{2}$$

(2)

13. The table and histogram give some information about the heights of plants in a greenhouse.



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

Height (h cm)	Frequency
$0 < h \leq 20$	800
$20 < h \leq 30$	1680
$30 < h \leq 40$	1200
$40 < h \leq 70$	1800
$70 < h \leq 100$	1080

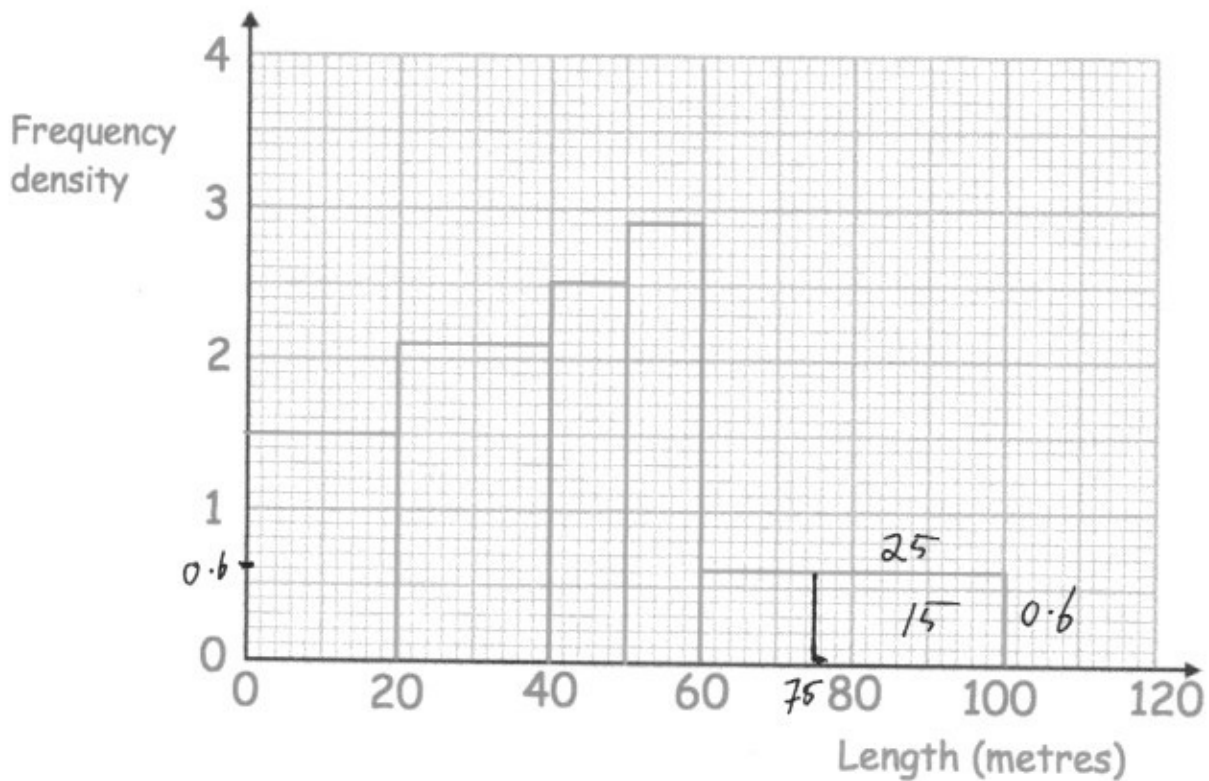
$$\begin{aligned}
 & \text{*} \\
 & 40 \\
 & 20 \times \square = 800 \\
 & 10 \times 168 = 1680 \\
 & 1200 \div 10 = 120 \\
 & 1800 \div 30 = 60 \\
 & 30 \times 36 = 1080
 \end{aligned}$$

(2)

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

(2)

14. The histogram shows information about how far 150 children swam, when trying to get their swimming certificates.



(a) Complete this frequency table.

Length, l metres	Frequency
$0 < l \leq 20$	30
$20 < l \leq 40$	42
$40 < l \leq 50$	25
$50 < l \leq 60$	29
$60 < l \leq 100$	24

20×2.1

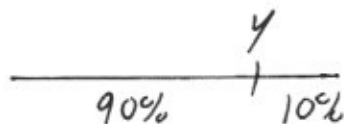
10×2.9

(2)

- (b) 10% of the swimmers swam further than y metres.
Calculate an estimate of y .

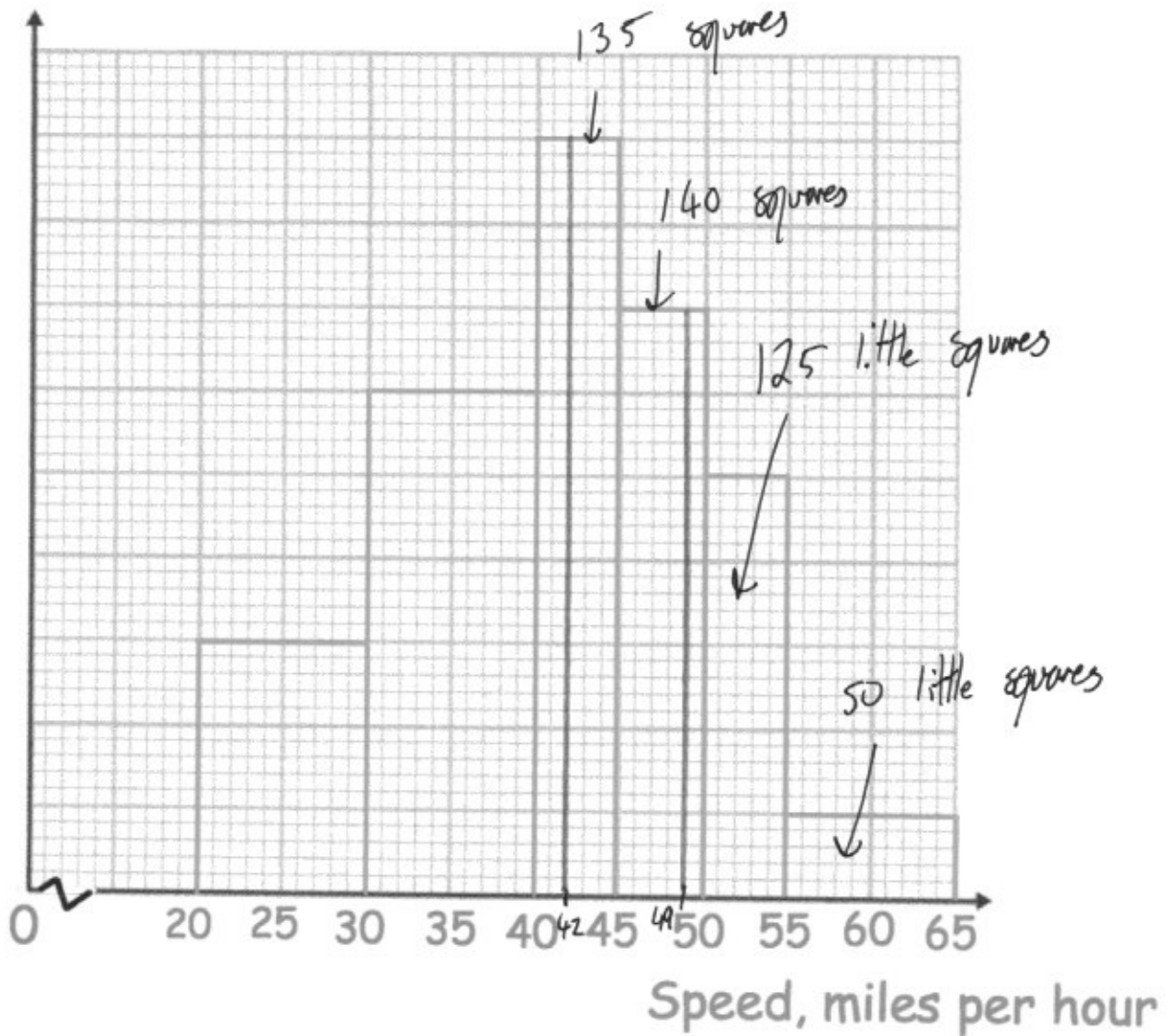
$0.6 \times \square = 15$ (with 25 written above the square)

$10\% \text{ of } 150 = 15$



75 m
.....
(2)

15. The histogram shows the speeds in miles per hour of 82 cars on a road.



14 cars were travelling over 50 mph.

Calculate an estimate of the number of cars that were travelling between 42 and 49 mph.

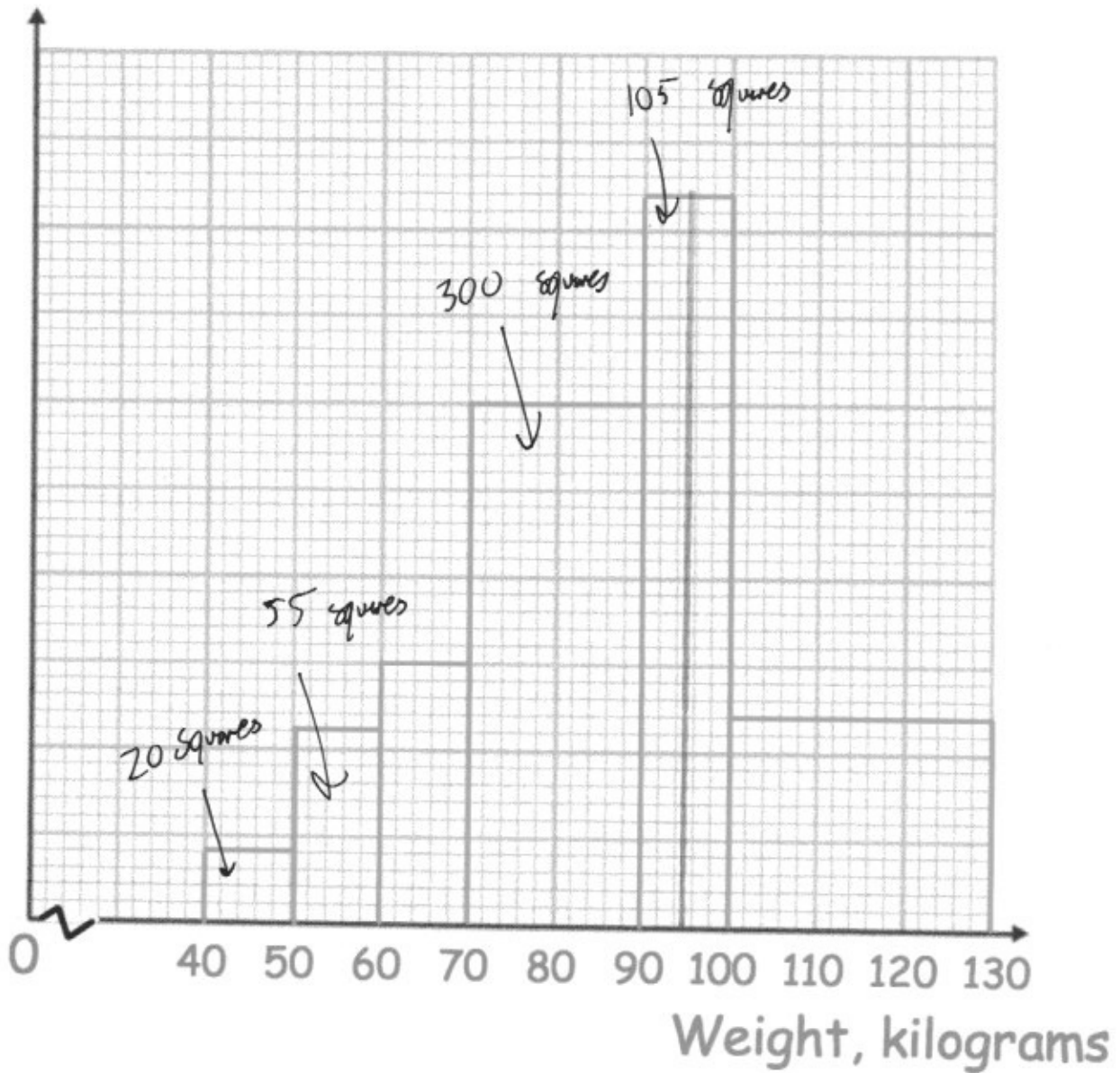
$$175 \text{ squares} = 14 \text{ cars}$$

$$12.5 \text{ squares} = 1 \text{ car}$$

$$275 \div 12.5 = 22 \text{ cars}$$

$$\begin{array}{r} 22 \\ \hline \end{array} \quad (4)$$

16. The histogram shows the weights in kilograms of 504 athletes.



45 athletes weigh under 60kg.

Calculate an estimate of the number of athletes between 70 and 95kg.

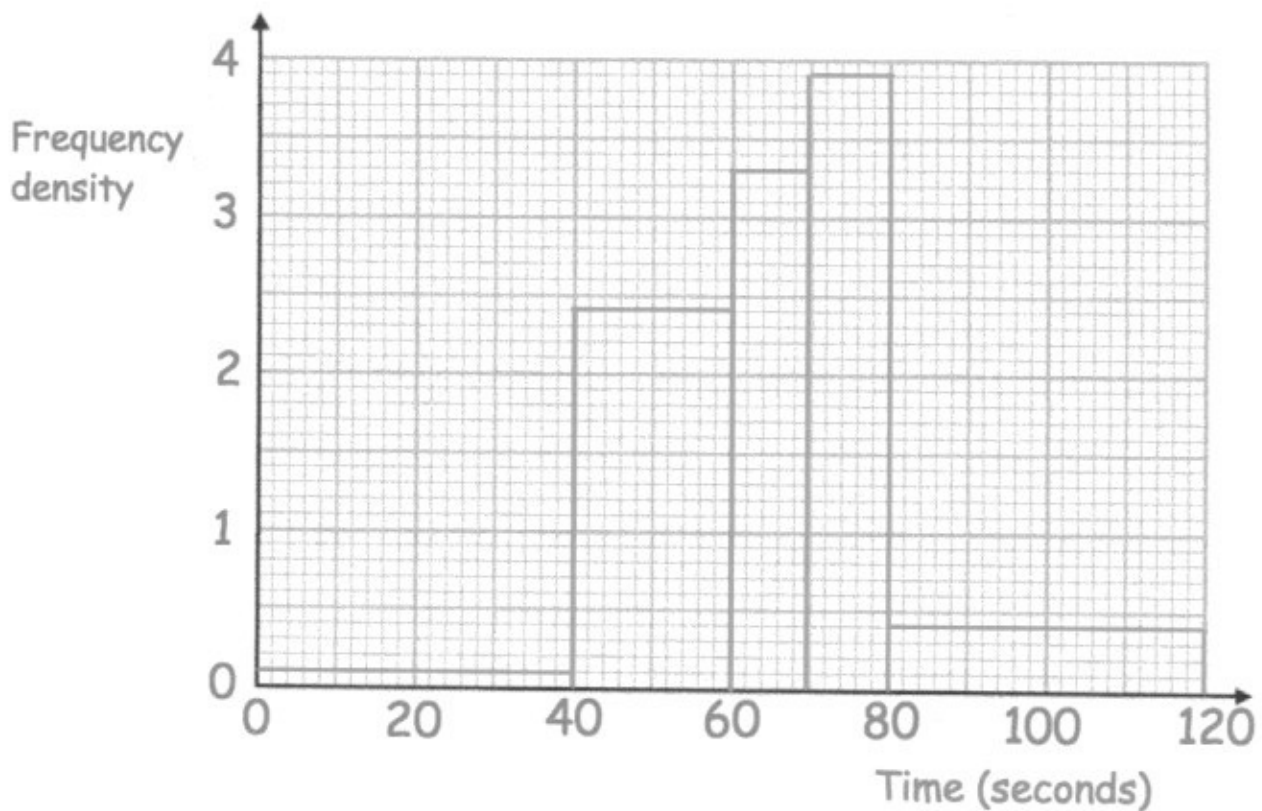
$$45 \text{ athletes} = 75 \text{ squares}$$

$$1 \text{ athlete} = 1\frac{2}{3} \text{ squares}$$

$$405 \div 1\frac{2}{3} = 243$$

$$\begin{array}{r} 243 \\ \hline \end{array} \quad (4)$$

17. The histograms shows information about the time taken by 140 students to complete a puzzle.



- (a) Complete this frequency table.

Time, t seconds	Frequency
$0 < t \leq 40$	4
$40 < t \leq 60$	48
* $60 < t \leq 70$	33
$70 < t \leq 80$	39
$80 < t \leq 120$	16

20×2.4

10×3.9

- (b) Calculate an estimate of the median.

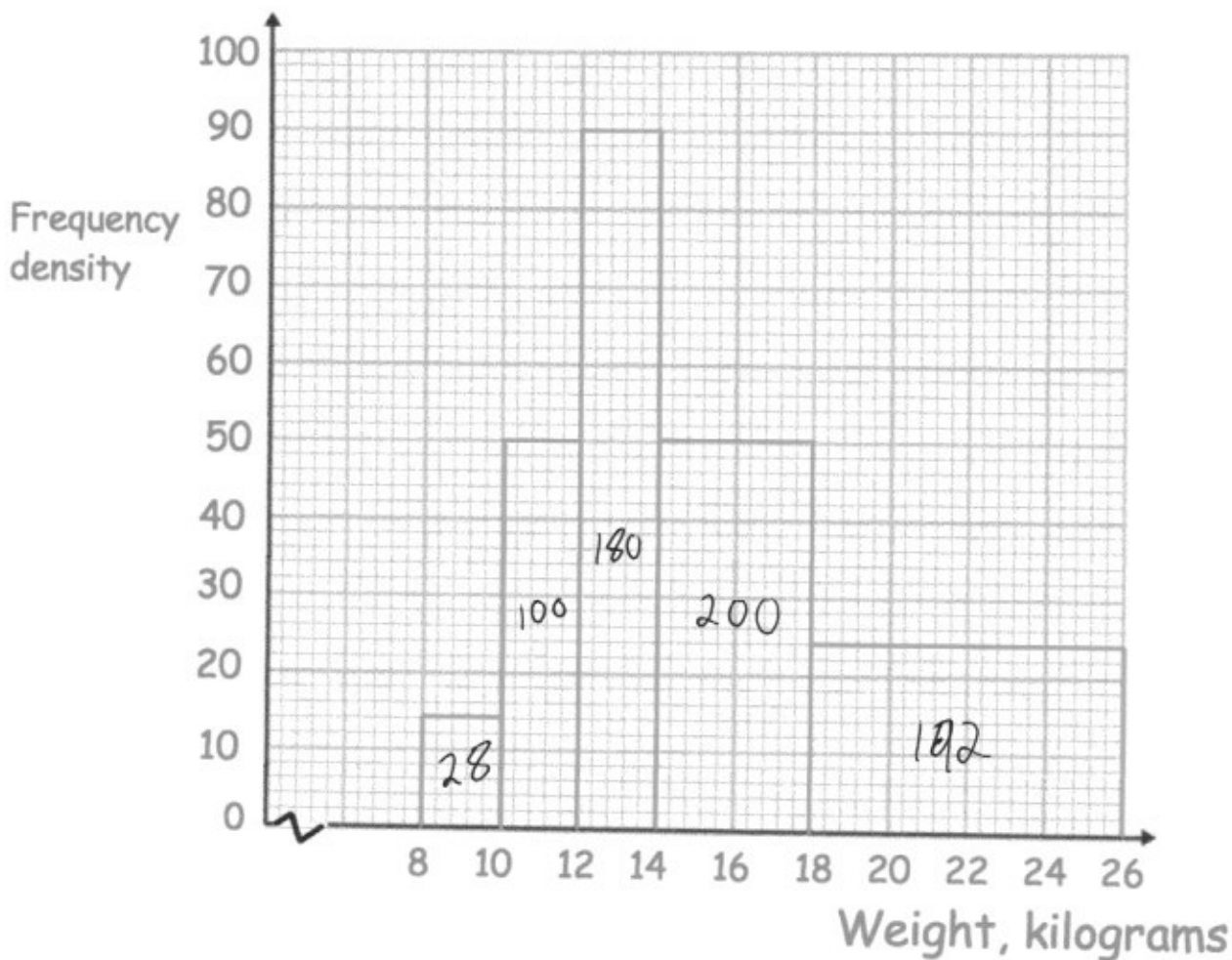
(2)

70th value.

$$60 + \frac{18}{33} \times 10 =$$

$$\begin{array}{r} 65.455 \text{ seconds} \\ \hline (3) \text{ to 3 dp.} \end{array}$$

18. The histogram shows the weights of 700 dogs.



(a) Calculate an estimate of the median.

350th

42 into

$$14 \leq w < 18$$

$$14 + \frac{42}{200} \times 4$$

14.84

(3)

(b) Calculate an estimate of the upper quartile.

525th

$$17 \text{ into } 18 \leq w < 26$$

$$18 + \frac{17}{192} \times 8$$

18.708

(3)