

Name: _____

GCSE (1 – 9)

Histograms

Instructions

- Use **black** ink or ball-point pen.
- Answer all questions.
- Answer the questions in the spaces provided
– *there may be more space than you need.*
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out.**

Information

- The marks for each question are shown in brackets
– *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end

1 The table shows information about the age of 80 teachers.

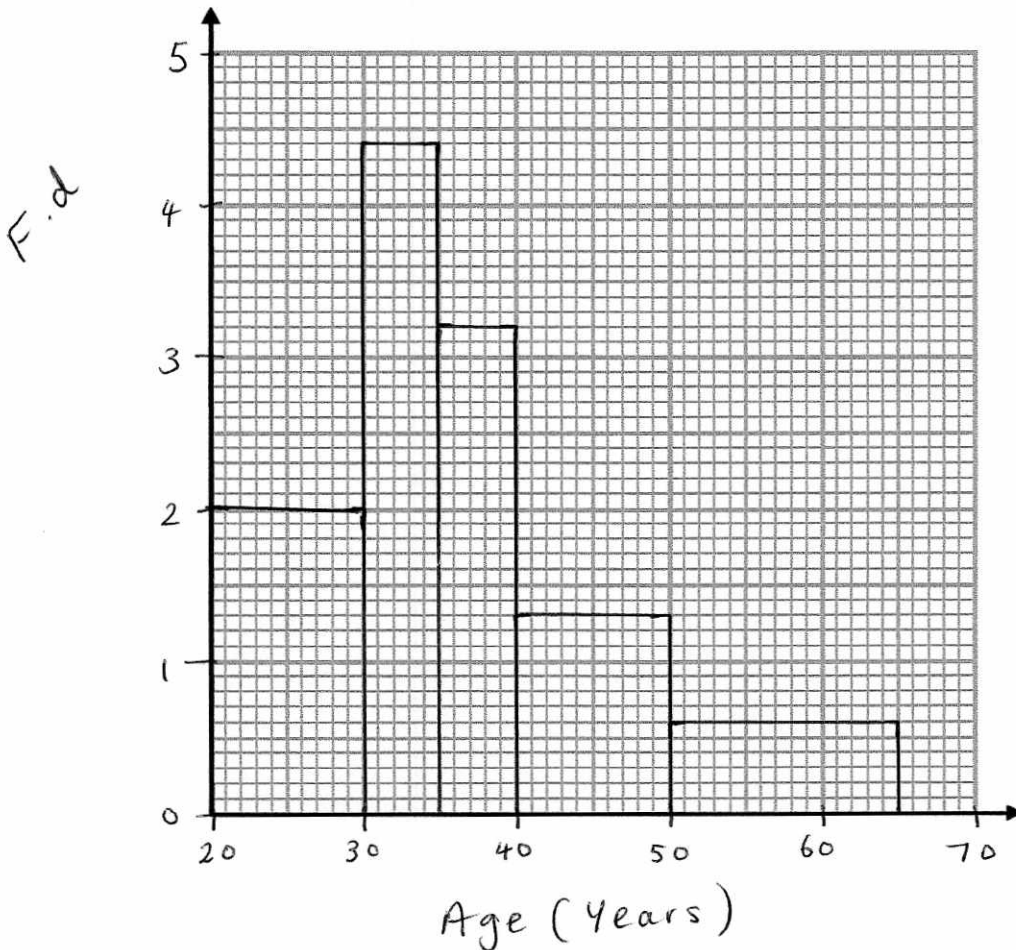
$$F.d = \frac{\text{Freq}}{\text{width}}$$

| Age (years) | Frequency |
|--------------------------------|-----------|
| $20 < a \leq 30$ ¹⁰ | 20 |
| $30 < a \leq 35$ ⁵ | 22 |
| $35 < a \leq 40$ ⁵ | 16 |
| $40 < a \leq 50$ ¹⁰ | 13 |
| $50 < a \leq 65$ ¹⁵ | 9 |

F.d.

2 $[20 \div 10]$
 4.4 $[22 \div 5]$
 3.2 $[16 \div 5]$
 1.3 $[13 \div 10]$
 0.6 $[9 \div 15]$

On the grid, draw a histogram for the information in the table.



(Total for question 1 is 3 marks)

2 The table shows information about the speed, in mph, of 120 cars.

| Speed (mph) | Frequency |
|--------------------------------|-----------|
| $40 < s \leq 55$ ¹⁵ | 6 |
| $55 < s \leq 60$ ⁵ | 10 |
| $60 < s \leq 65$ ⁵ | 46 |
| $65 < s \leq 75$ ¹⁰ | 48 |
| $75 < s \leq 90$ ¹⁵ | 6 |

F.d.

0.4

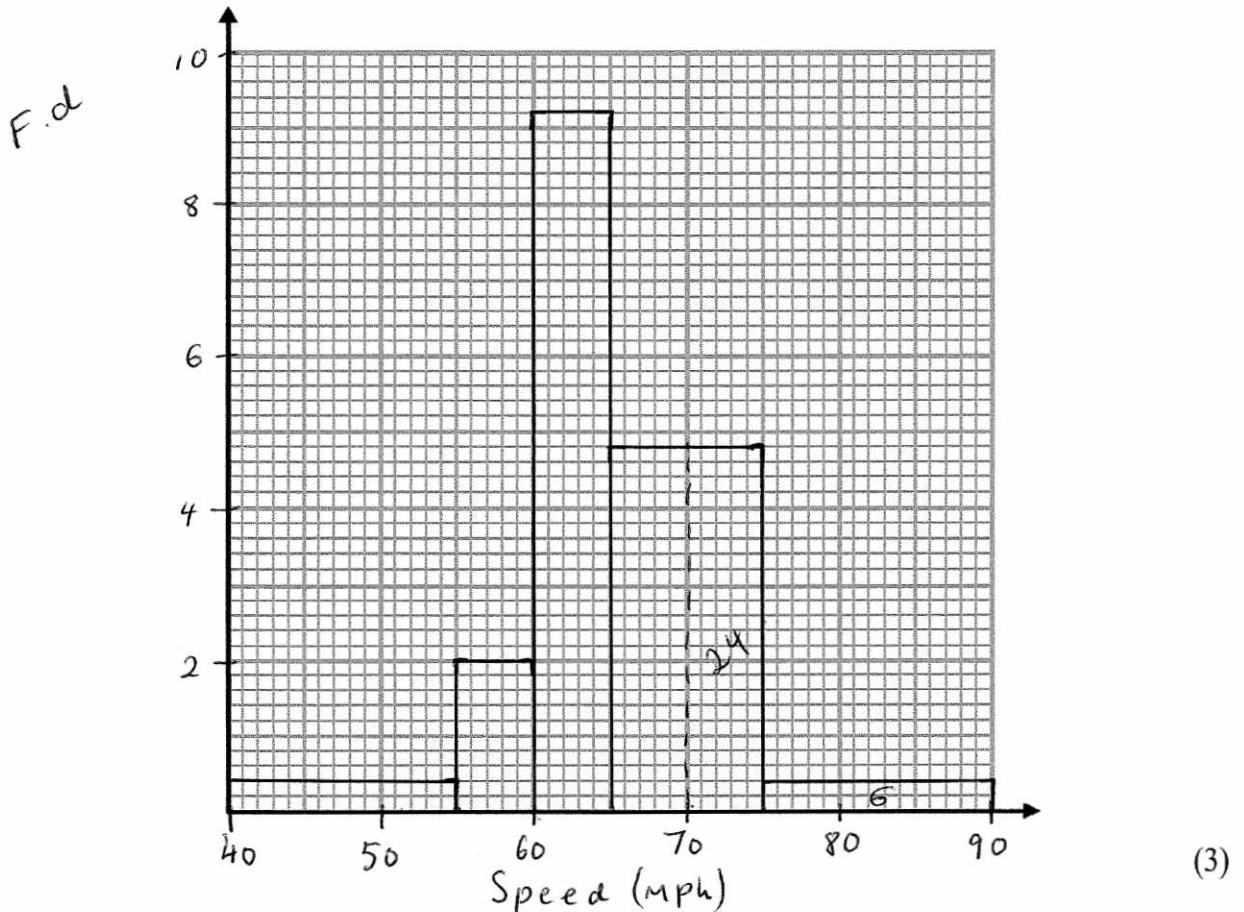
2

9.2

4.8

0.4

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



(b) Work out an estimate for the number of cars over 70mph.

30

(1)

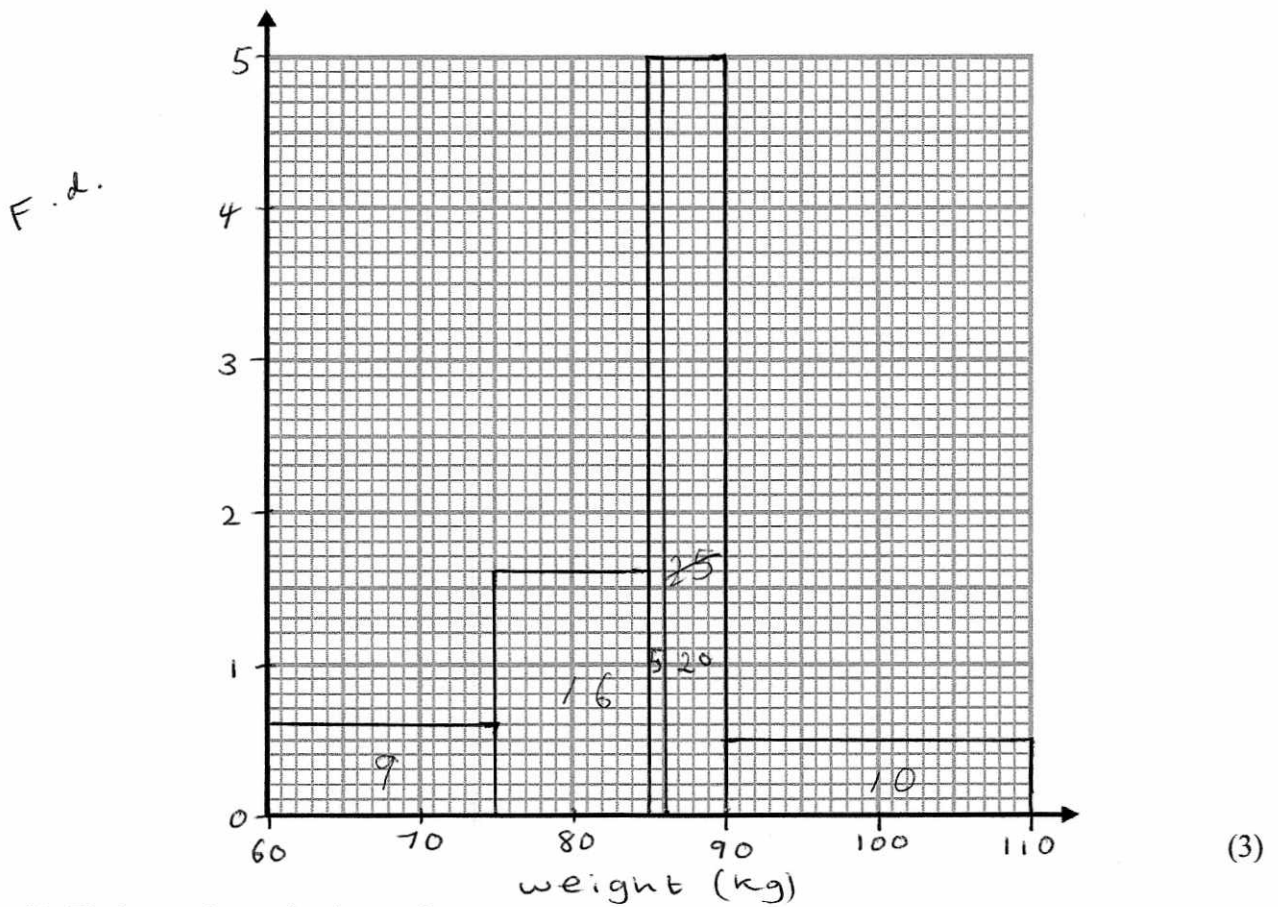
(Total for question 2 is 4 marks)

3 The table shows information about the weight of 60 pigs.

| Weight (kg) | Frequency |
|---------------------------------|-----------|
| $60 < w \leq 75$ ¹⁵ | 9 |
| $75 < w \leq 85$ ¹⁰ | 16 |
| $85 < w \leq 90$ ⁵ | 25 |
| $90 < w \leq 110$ ²⁰ | 10 |

F.d.
0.6
1.6
5
0.5

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



(b) Find an estimate for the median.

$$\frac{60}{2} = 30$$

30 on each side

..... 86 kg
(2)

(Total for question 3 is 5 marks)

4 The table shows information about the time, in seconds, taken for some people to run a 100m race.

| Time (s) | Frequency |
|------------------|-----------|
| $10 < t \leq 12$ | 6 |
| $12 < t \leq 13$ | 21 |
| $13 < t \leq 14$ | 23 |
| $14 < t \leq 16$ | 42 |
| $16 < t \leq 20$ | 8 |

F.d

3

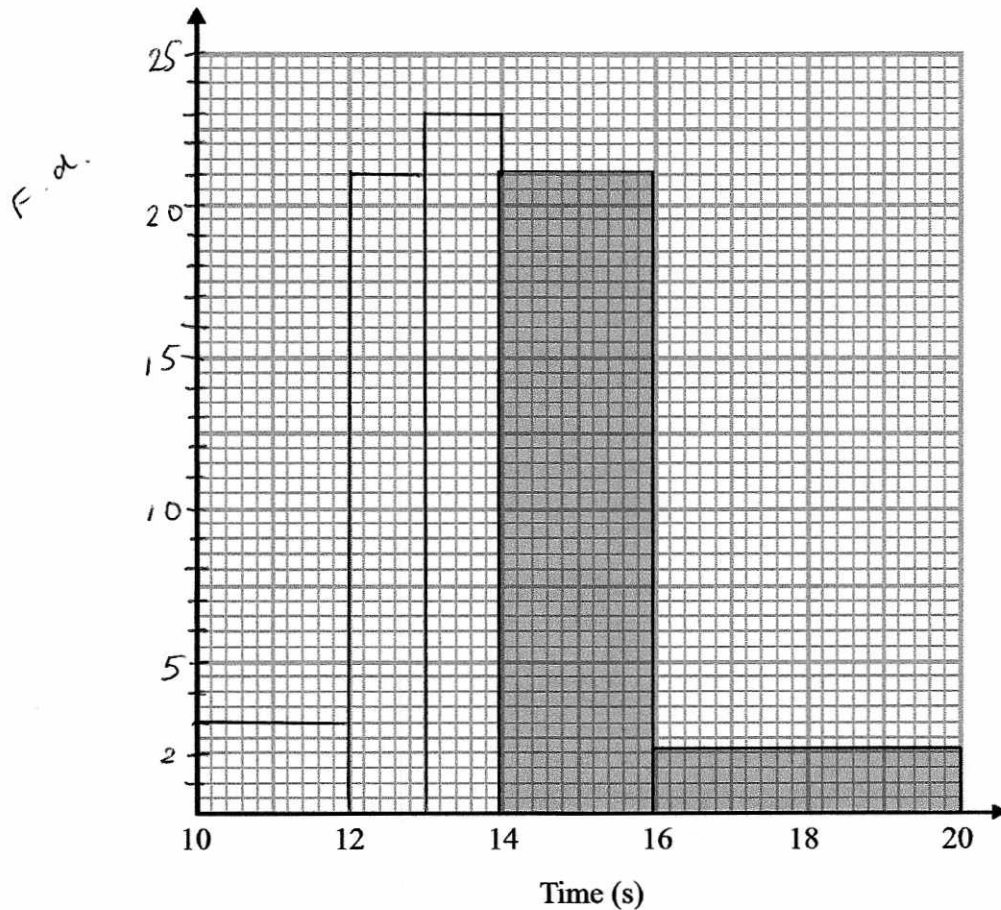
21

23

21

2

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



(b) Use the histogram to complete the table.

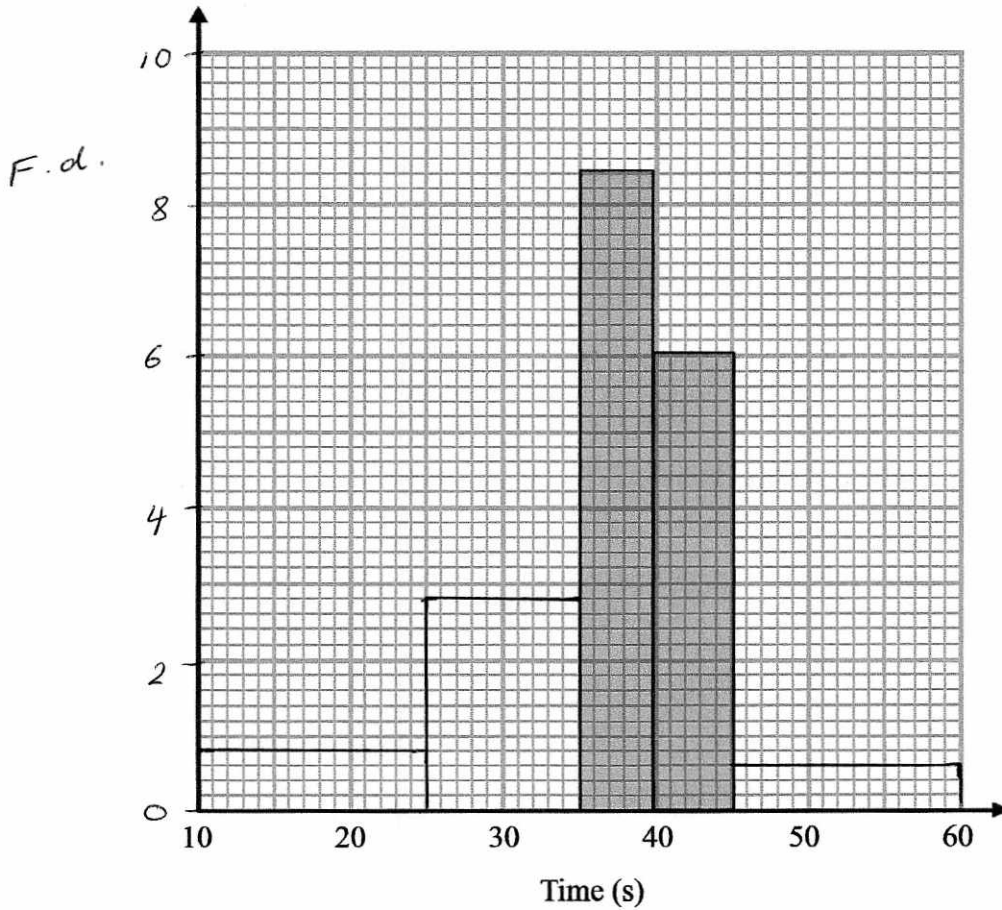
$$21 \times 2 = 42$$

(Total for question 4 is 4 marks)

5 The table shows information about the time, in seconds, taken for some people to complete a puzzle.

| Time (s) | Frequency | <i>F.d</i> |
|------------------|-----------|------------|
| $10 < t \leq 25$ | 12 | <i>0.8</i> |
| $25 < t \leq 35$ | 28 | <i>2.8</i> |
| $35 < t \leq 40$ | 42 | <i>8.4</i> |
| $40 < t \leq 45$ | <i>30</i> | <i>6</i> |
| $45 < t \leq 60$ | 9 | <i>0.6</i> |

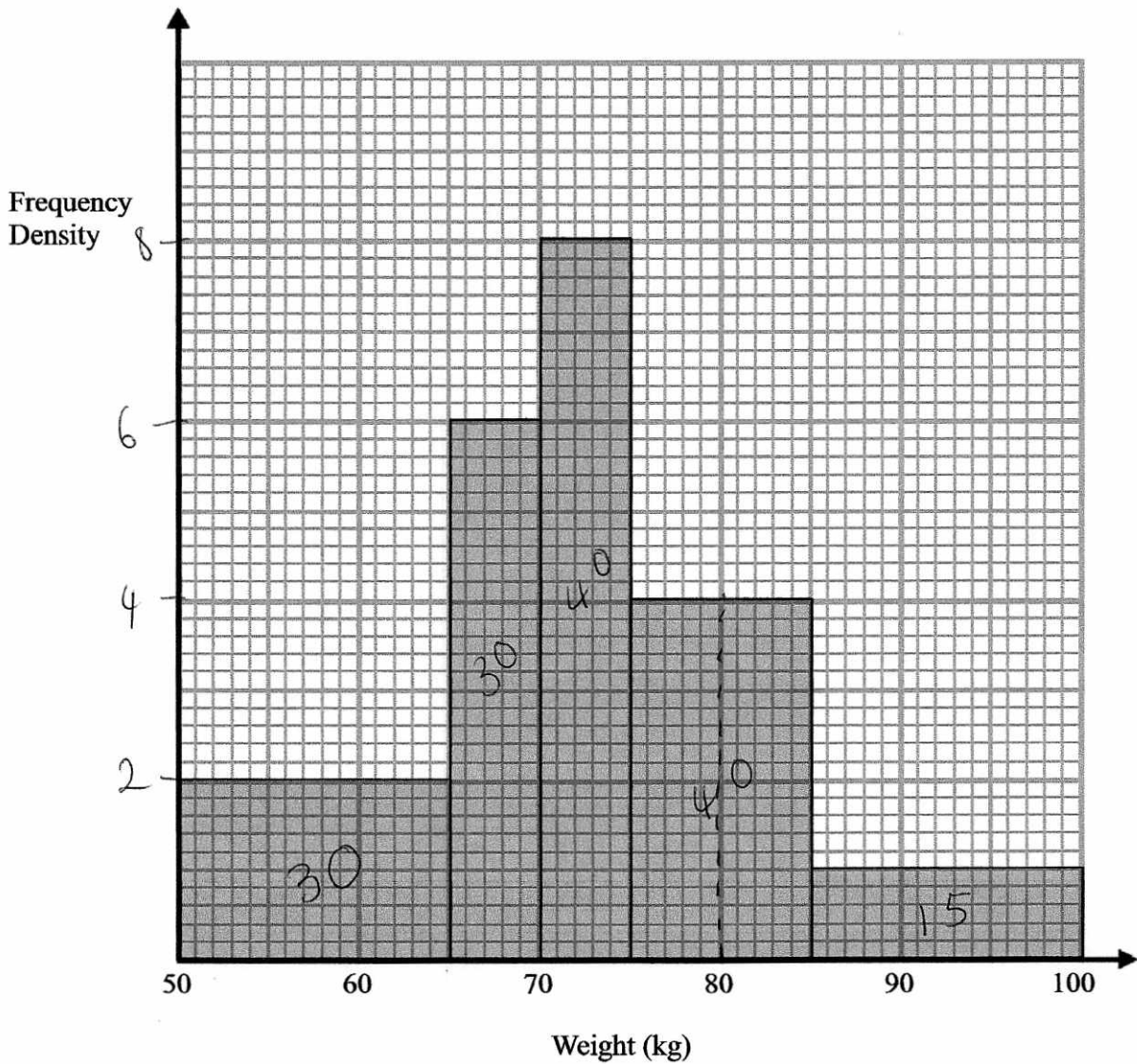
(a) Use the information on the table to complete the histogram.



(b) Use the histogram to complete the table.

(Total for question 5 is 4 marks)

6 The histogram shows information about the weight of pigs.



30 pigs weigh between 50 and 65 kg.

(a) Work out an estimate for the number of pigs which weigh more than 80kg.

$$20 + 15$$

35

(3)

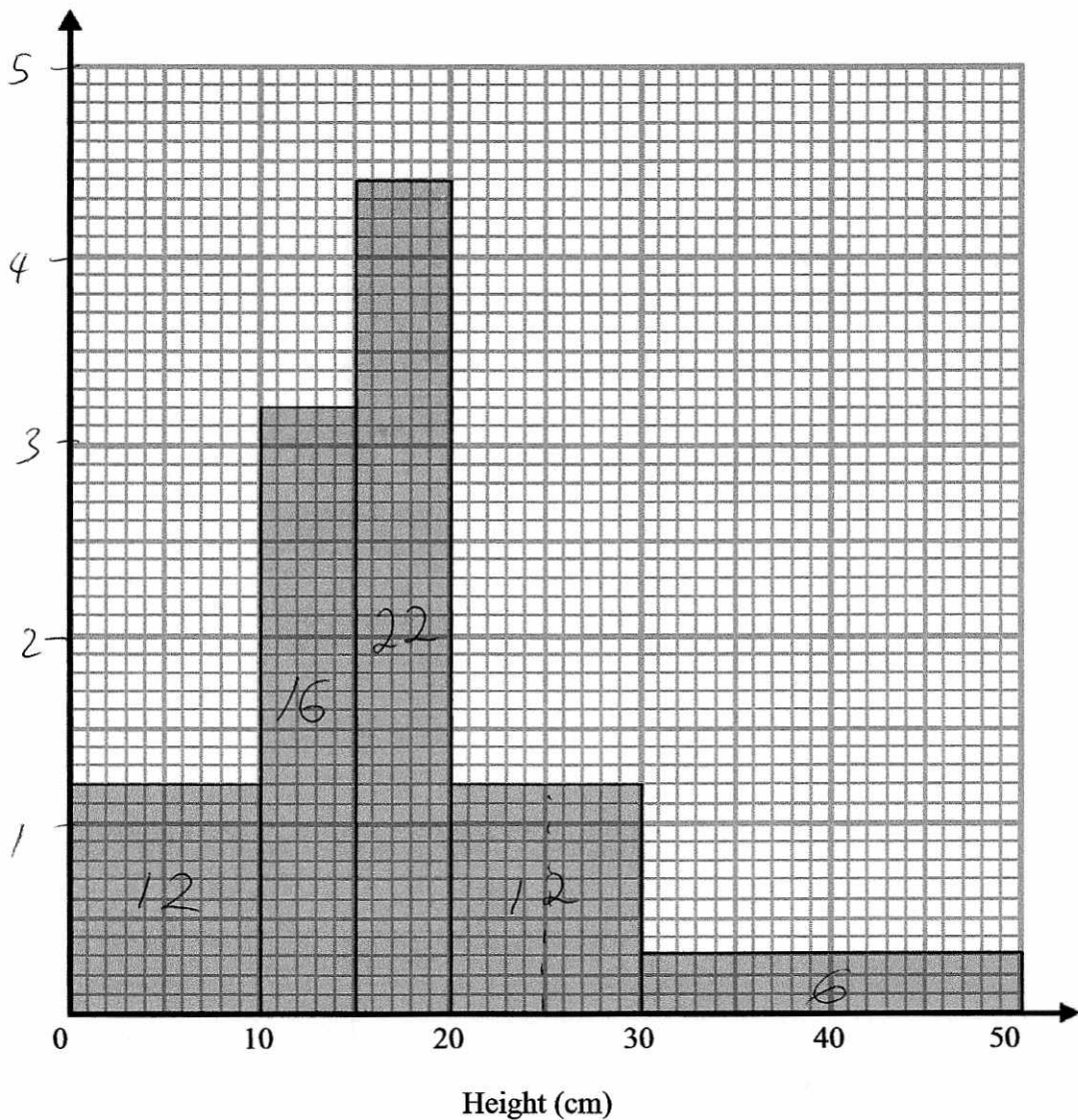
(b) Explain why your answer to part a is only an estimate.

we are using grouped data. we don't know how many pigs weigh between 80 and 85 kg.

(1)

(Total for question 6 is 4 marks)

7 The histogram shows information about the height of some plants.



(a) Work out an estimate for the proportion of plants over 25cm tall.

$$6 + 6 = 12$$

$$12 + 16 + 22 + 12 + 6 = 68$$

$$\frac{12}{68} \text{ or } \frac{3}{17}$$

$$\frac{12}{68}$$

(3)

(b) Explain why your answer to part a is only an estimate.

we are using grouped data. we don't know how many plants are between 25 and 30 cm tall.

(1)

(Total for question 7 is 4 marks)