Name: SOLUTIONS

GCSE (1 - 9)

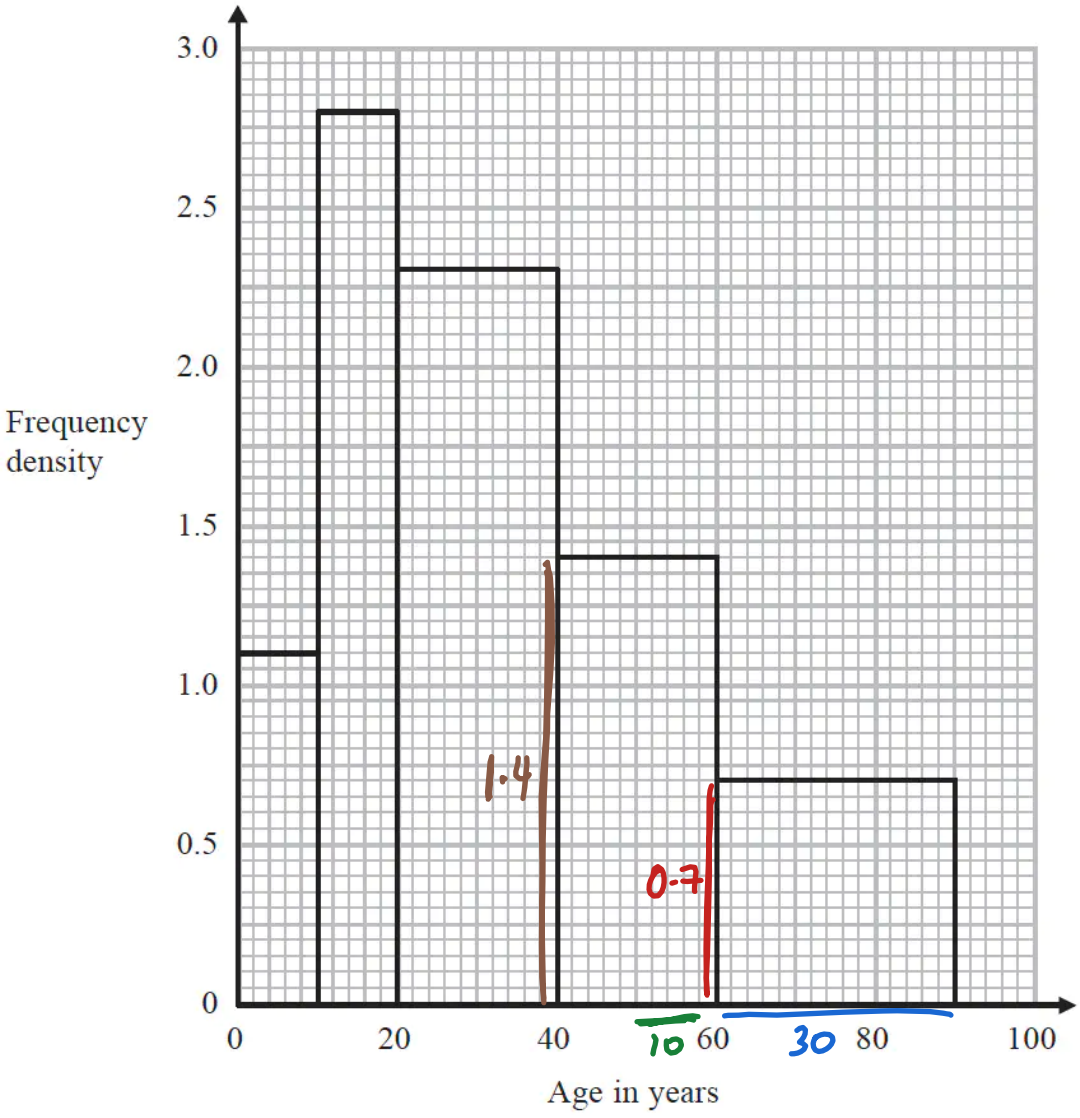
Histograms

These questions represent all of the times that this topic has appeared in unlocked Pearson Edexcel GCSE maths papers.

Question	Where the question appeared
1	Edexcel, GCSE, Summer 2017, Paper 2H, Q13
2	Edexcel, GCSE, Autumn 2017, Paper 2H, Q17
3	Edexcel, GCSE, Summer 2018, Paper 2H, Q17
4	Edexcel, GCSE, Autumn 2018, Paper 3H, Q17
5	Edexcel, GCSE, Summer 2019, Paper 3H, Q21
6	Edexcel, GCSE, Autumn 2019, Paper 2H, Q18
7	Edexcel, GCSE, Autumn 2020, Paper 3H, Q17

1

The histogram shows some information about the ages of the 134 members of a sports club.



20% of the members of the sports club who are over 50 years of age are female.

Work out an estimate for the number of female members who are over 50 years of age.

60 to 90 $30 \times 0.7 = 21$

50 to 60 $10 \times 1.4 = 14$

$21 + 14 = 35$

20% of 35 = 7

(Total for Question 13 is 3 marks)

[Edexcel, GCSE, Summer 2017, Paper 2H, Q13]

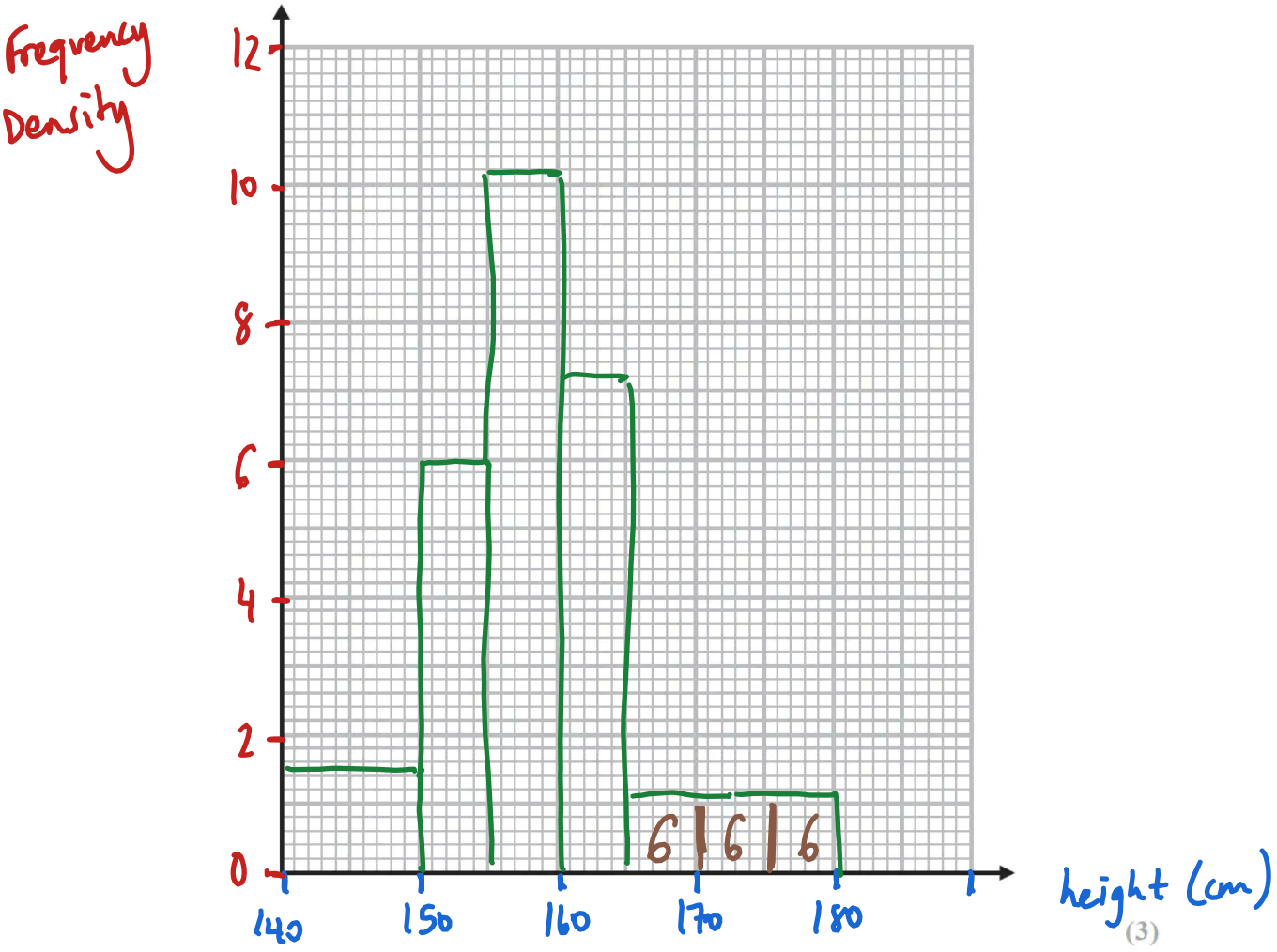
2

The table gives information about the heights of 150 students.

Height (h cm)	Frequency
$140 < h \leqslant 150$	15
$150 < h \leqslant 155$	30
$155 < h \leqslant 160$	51
$160 < h \leqslant 165$	36
$165 < h \leqslant 180$	18

Freq. Density
15 ÷ 10 = 1·5
30 ÷ 5 = 6
51 ÷ 5 = 10·2
36 ÷ 5 = 7·2
18 ÷ 15 = 1·2

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



(3)

(b) Work out an estimate for the fraction of the students who have a height between 150 cm and 170 cm.

$$\frac{30+51+36+6}{150} = \frac{123}{150}$$

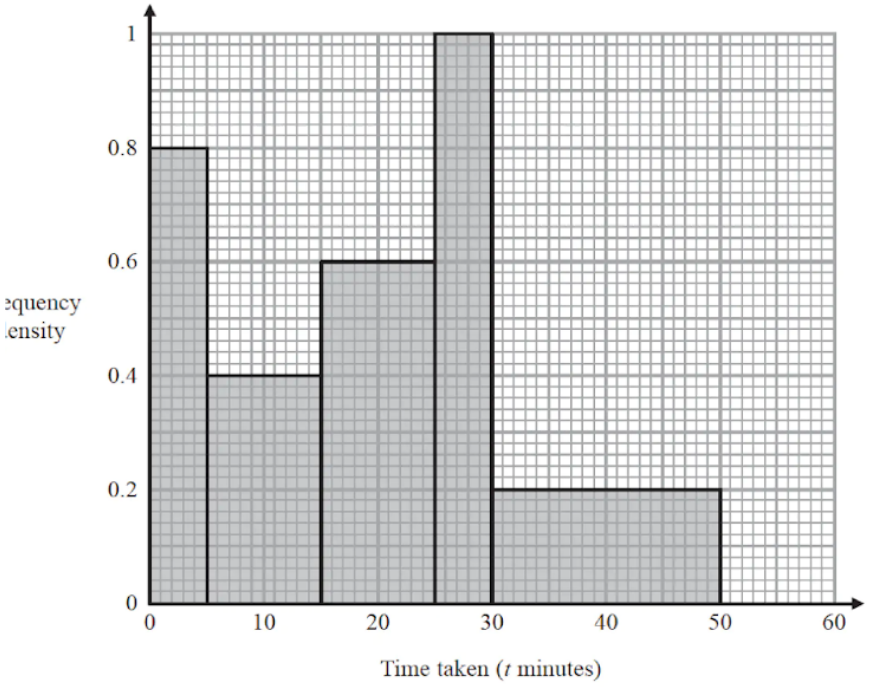
(2)

(Total for Question 17 is 5 marks)

[Edexcel, GCSE, Autumn 2017, Paper 2H, Q17]

3

The histogram shows information about the times taken by some students to finish a puzzle.



(a) Complete the frequency table for this information.

Time taken (t minutes)	Frequency
$0 < t \leqslant 5$	4
$5 < t \leqslant 15$	4
$15 < t \leqslant 25$	6
$25 < t \leqslant 30$	5
$30 < t \leqslant 50$	4

10 x 0·4
10 x 0·6
5 x 1
20 x 0·2
23

(2)

(b) Find an estimate for the lower quartile of the times taken to finish the puzzle.

$\frac{23}{4} = 5.75$

$5.75 - 4 = 1.75$

$\frac{1.75}{4} \times 10 = 4.375$

$5 + 4.375 = 9.375$ minutes

(2)

(Total for Question 17 is 4 marks)

[Edexcel, GCSE, Summer 2018, Paper 2H, Q17]

4

The table shows information about the distances 570 students travelled to a university open day.

Distance (d miles)	Frequency
$0 < d \leqslant 20$	120
$20 < d \leqslant 50$	90
$50 < d \leqslant 80$	120
$80 < d \leqslant 150$	140
$150 < d \leqslant 200$	100

Frequency Density

120 ÷ 20 = 6

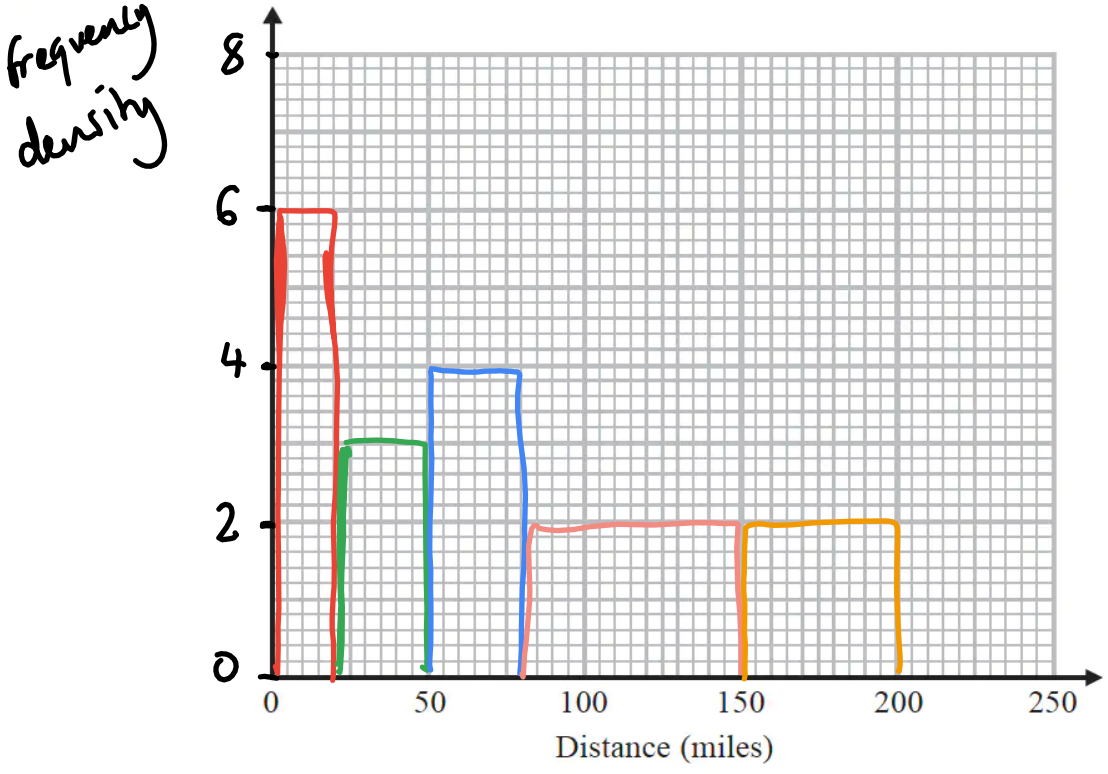
90 ÷ 30 = 3

120 ÷ 30 = 4

140 ÷ 70 = 2

100 ÷ 50 = 2

(a) Draw a histogram for the information in the table.



(3)

(b) Estimate the median distance.

570 ÷ 2 = 285th student

285 - 210 = 75

$\frac{75}{120} \times 30 = 18.75$

50 + 18.75 = 68.75

..... miles

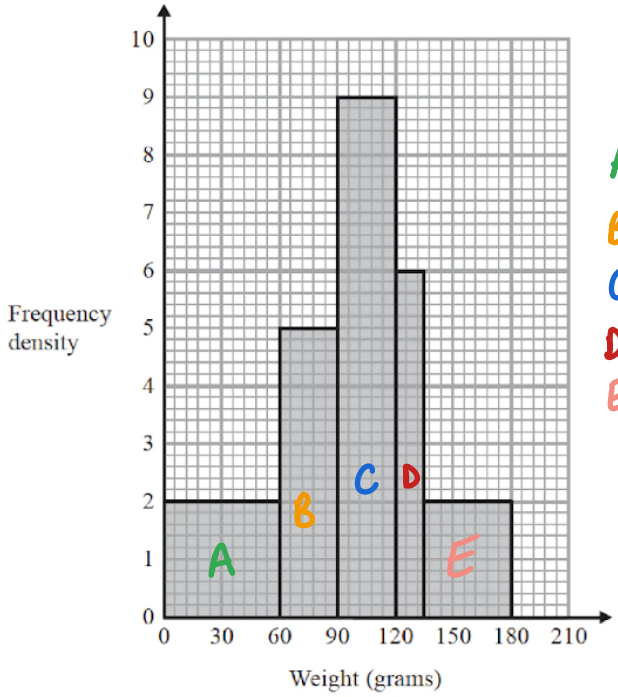
(2)

(Total for Question 17 is 5 marks)

[Edexcel, GCSE, Autumn 2018, Paper 3H, Q17]

5

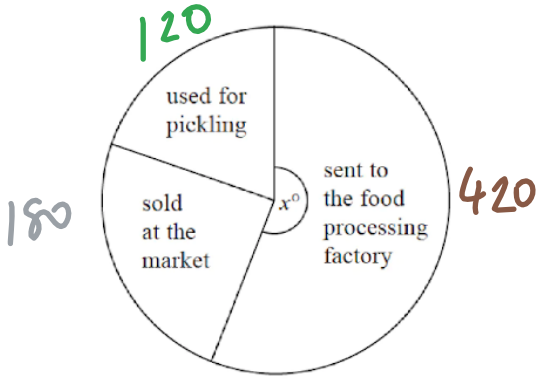
The histogram gives information about the distribution of the weights of some onions grown by a farmer.



A = 60 x 2 = 120 Pickled
B = 30 x 5 = 150
C = 30 x 9 = 270 Food Process
D = 15 x 6 = 90 Market = 180
E = 45 x 2 = 90
TOTAL 720

Onions less than 60 grams in weight are used for pickling.
Onions greater than 120 grams in weight are sold at the market.
The rest of the onions are sent to a food processing factory.

A pie chart is drawn using the information opposite to show what the farmer does with the onions he grows.



120
180
420

The angle of the sector for the onions sent to the food processing factory is $x°$.

Work out the value of x.

$$\frac{420}{720} \times 360 = 210°$$

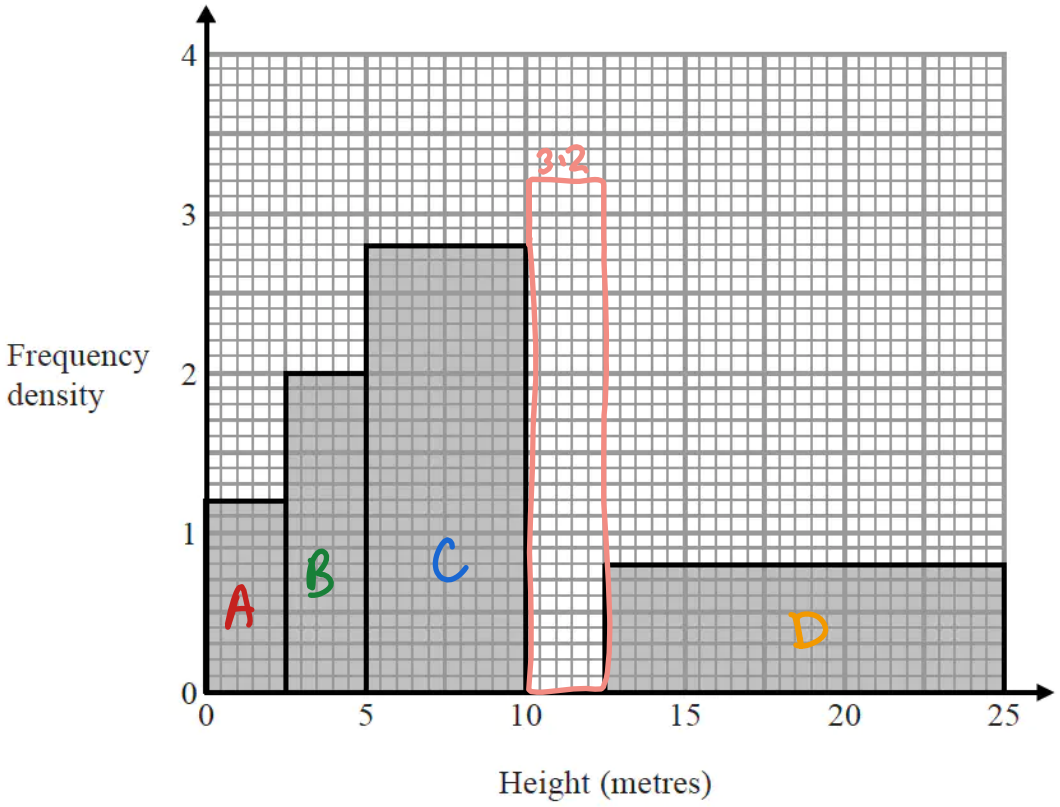
$x =$ 210

(Total for Question 21 is 4 marks)

[Edexcel, GCSE, Summer 2019, Paper 3H, Q21]

6

The histogram gives information about the heights, in metres, of the trees in a park.
The histogram is incomplete.



20% of the trees in the park have a height between 10 metres and 12.5 metres.
None of the trees in the park have a height greater than 25 metres.

Complete the histogram.

A = 1·2 × 2·5 = 3

B = 2 × 2·5 = 5

C = 2·8 × 5 = 14

D = 0·8 × 12·5 = 10

3 + 5 + 14 + 10 = 32

80% = 32

20% = 8

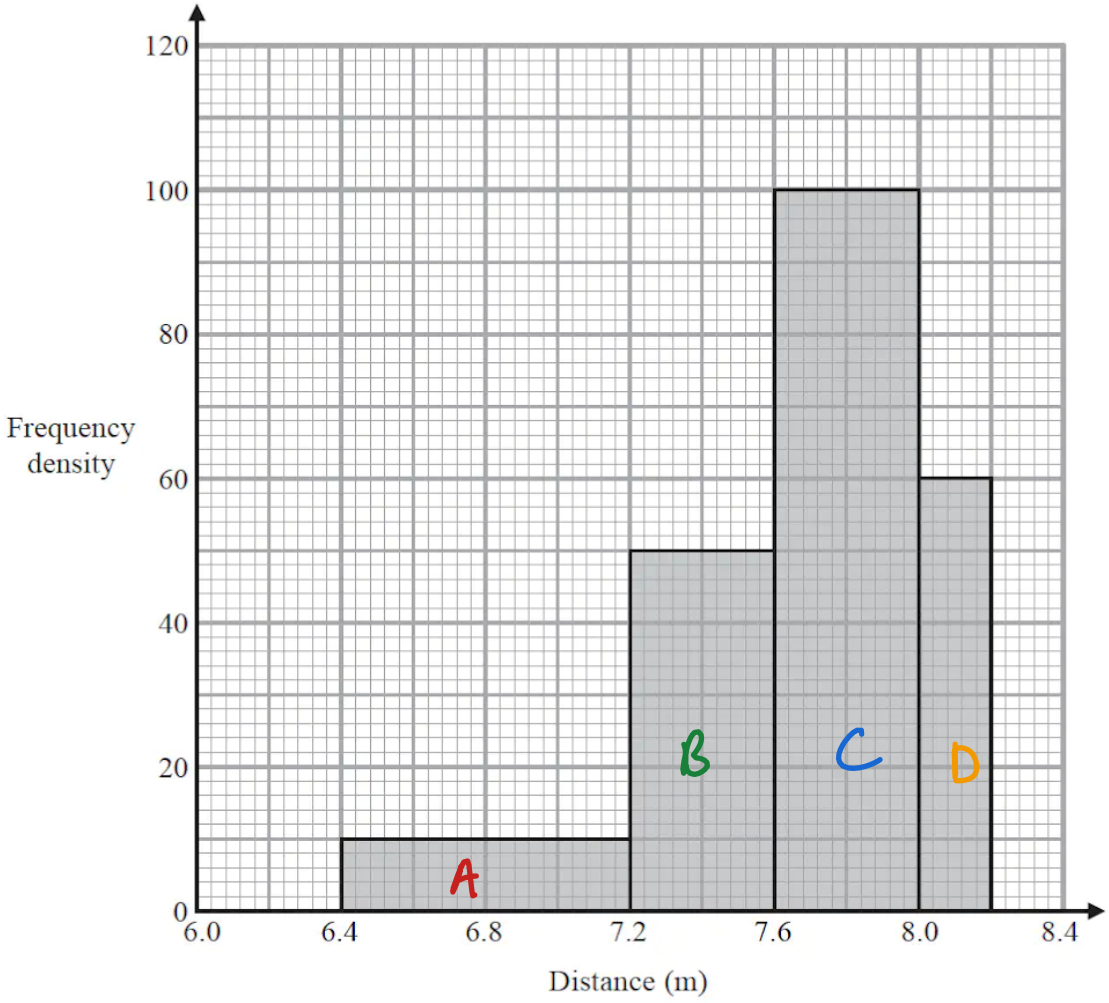
8 ÷ 2·5 = 3·2
Bar has height of 3·2

(Total for Question 18 is 3 marks)

[Edexcel, GCSE, Autumn 2019, Paper 2H, Q18]

7

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



Calculate an estimate for the mean distance.

A = 0·8 x 10 = 8

B = 0·4 x 50 = 20

C = 0·4 x 100 = 40

D = 0·2 x 60 = 12

8 x 6·8 = 54·4

20 x 7·4 = 148

40 x 7·8 = 312

12 x 8·1 = 97·2

611·6 ÷ 80

7·645 m

(Total for Question 17 is 4 marks)

[Edexcel, GCSE, Autumn 2020, Paper 3H, Q17]