THIRD SPACE LEARNING

GCSE Exam Questions

Histograms | Statistics

GCSE Exam Questions: Histograms

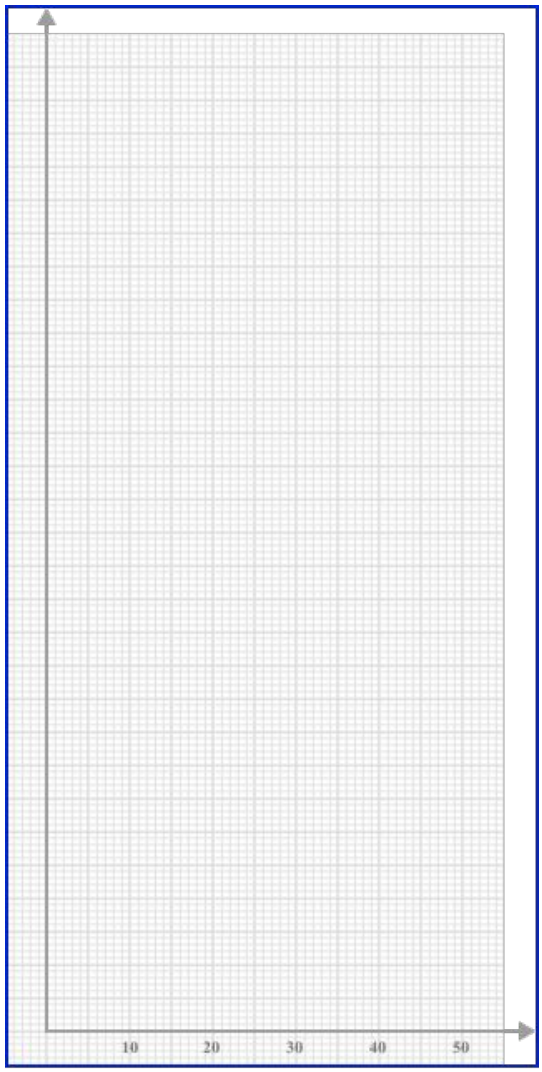
1) (a) The frequency table shows the ages of guests at a hotel.

Age, years	Frequency	Frequency Density
$0 \leq x < 5$	6	
$5 \leq x < 10$	13	
$10 \leq x < 20$	14	
$20 \leq x < 30$	15	
$30 \leq x < 50$	12	

Complete the frequency density column.

(3)

(b) Use the table to draw a histogram for the data.

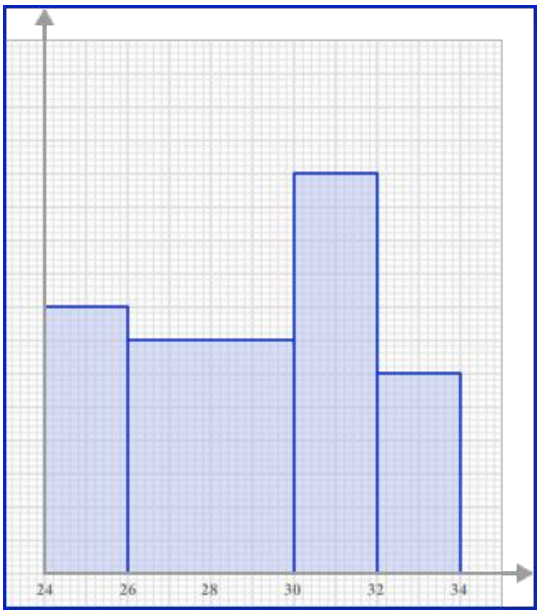


(3)

(6 marks)

GCSE Exam Questions: Histograms

2) The histogram shows information about the mass of 20 new-born calves on a farm.



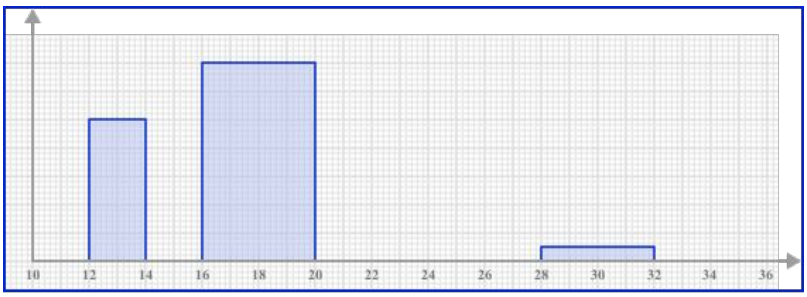
Use the histogram to estimate the number of calves with a mass of more than 31 *kg*.

(5 marks)

GCSE Exam Questions: Histograms

3) The widths of flowers in a garden were collected.

An incomplete histogram and table is shown below.



Width, mm

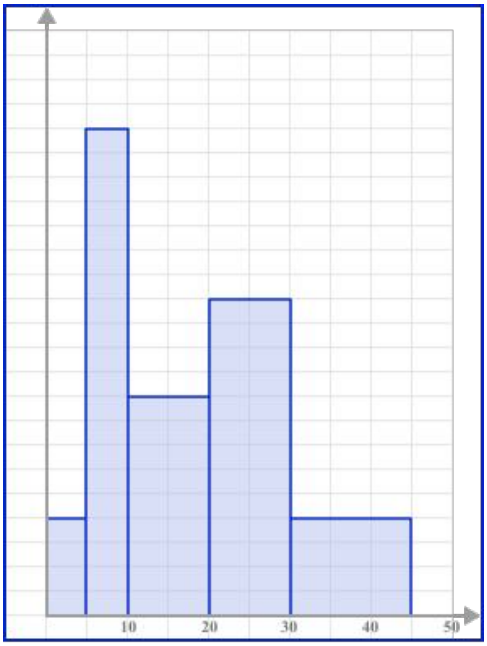
Width, mm	Frequency	Frequency Density
$12 \leq x < 14$		
$14 \leq x < 16$	9	
$16 \leq x < 20$	14	
$20 \leq x < 28$	4	
$28 \leq x < 32$		

Use the information provided to complete the histogram and table.

(5 marks)

GCSE Exam Questions: Histograms

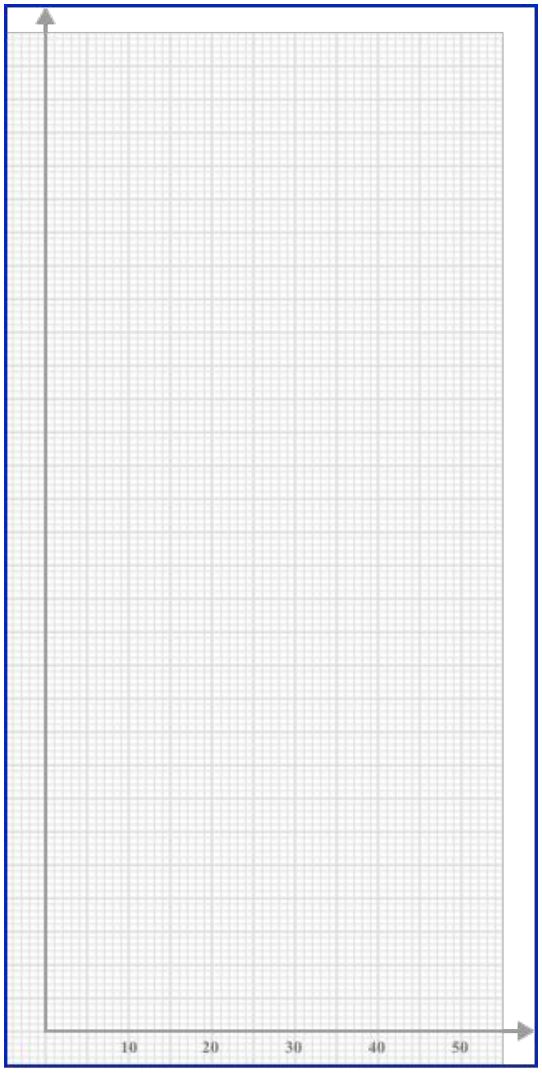
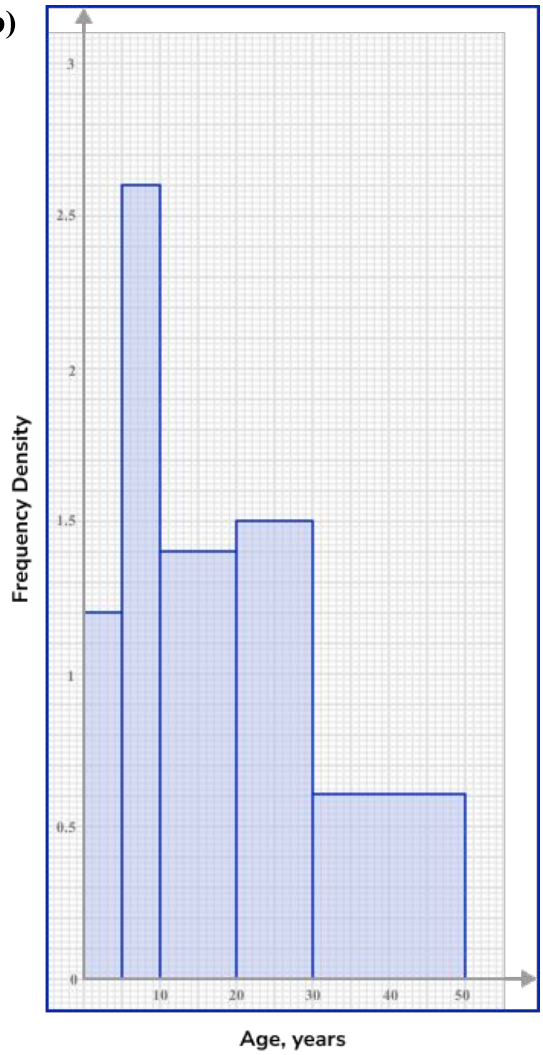
4) The histogram shows information about the mass of stones in a field.



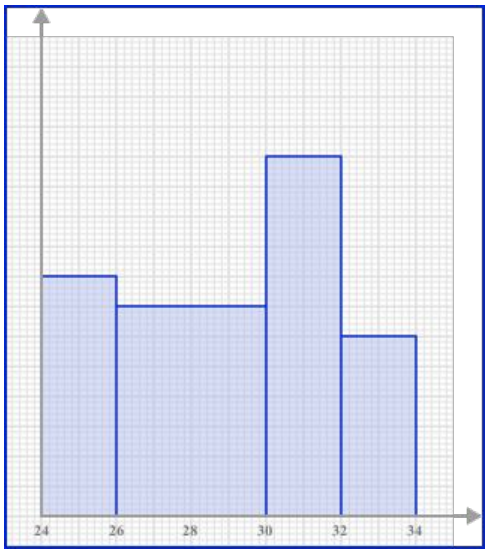
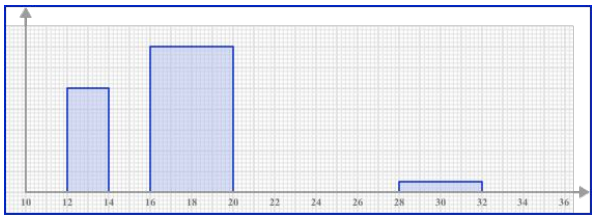
Use the histogram to estimate the interquartile range.

(6 marks)

GCSE Exam Questions: Histograms Answers

	Question	Answer	Marks
1) (a)	The frequency table shows the ages of guests at a hotel. | Age, years | Frequency | Frequency Density | | --- | --- | --- | | $0 \leq x < 5$ | 6 | | | $5 \leq x < 10$ | 13 | | | $10 \leq x < 20$ | 14 | | | $20 \leq x < 30$ | 15 | | | $30 \leq x < 50$ | 12 | | Complete the frequency density column.	**(a)** | Age, years | Frequency | Frequency Density | | --- | --- | --- | | $0 \leq x < 5$ | 6 | 1.2 | | $5 \leq x < 10$ | 13 | 2.6 | | $10 \leq x < 20$ | 14 | 1.4 | | $20 \leq x < 30$ | 15 | 1.5 | | $30 \leq x < 50$ | 12 | 0.6 | At least 1 Frequency Density correct 3 Frequency Densities correct All Frequency Densities correct	 **(1)** **(1)** **(1)**
(b)	Use the table to draw a histogram for the data.  	**(b)**  Frequency Density used for vertical scale 3 bars correct All bars correct	 **(1)** **(1)** **(1)**

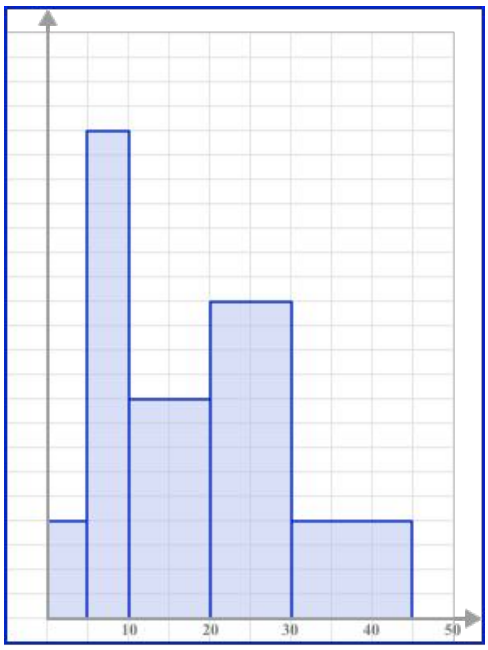
GCSE Exam Questions: Histograms Answers

	Question	Answer	Marks
2)	The histogram shows information about the mass of 20 newborn calves on a farm.  Use the histogram to estimate the number of caves with a mass of more than $31kg$.	Attempt to find "areas" of bars Frequency (30 - 32) = 6 Frequency (32 - 34) = 3 Frequency (31 - 32) = 3 6	**(1)** **(1)** **(1)** **(1)** **(1)**
3)	The widths of flowers in a garden were collected. An incomplete histogram and table is shown below.  Use the information provided to complete the histogram and table.	 Frequency density (16 - 20) = 3.5 Correctly label vertical axis All frequency density values correct All frequency values correct Remaining bars correctly drawn	**(1)** **(1)** **(1)** **(1)** **(1)**

Width, mm	Frequency	Frequency Density
$12 \leq x < 14$		
$14 \leq x < 16$	9	
$16 \leq x < 20$	14	
$20 \leq x < 28$	4	
$28 \leq x < 32$		

Width, mm	Frequency	Frequency Density
$12 \leq x < 14$	5	2.5
$14 \leq x < 16$	9	4.5
$16 \leq x < 20$	14	3.5
$20 \leq x < 28$	4	0.5
$28 \leq x < 32$	1	0.25

GCSE Exam Questions: Histograms Answers

	Question	Answer	Marks
4)	The histogram shows information about the mass of stones in a field.  Use the histogram to estimate the interquartile range.	Total area/frequency found e.g. 70 $\frac{8}{10}$ of 2^{nd} group = LQ $\frac{9}{13}$ or $\frac{4}{13}$ of 4^{th} group = UQ LQ = 9 UQ = 26.9 IQR = UQ - LQ = 17.9kg	**(1)** **(1)** **(1)** **(1)** **(1)** **(1)**

Where to go next?

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