HIGHER

4.1 Histograms and Frequency Density: 10-minute Pack

EDEXCEL 4MA1 · Calculator allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 A histogram will be drawn for the distribution: class $0 \le t < 5$ freq 8, $5 \le t < 15$ freq 20, $15 \le t < 20$ freq 12. Calculate the frequency density for $5 \le t < 15$ (note class width is not 10 for every class).

(Total for Question 1 is 2 marks)

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2 A histogram has class intervals $0 \le z < 4$, $4 \le z < 7$ and $7 \le z < 10$, with frequency densities 1.5, 3 and 1 respectively. Calculate the frequency for each class, giving each frequency as an integer.

(Total for Question 2 is 3 marks)

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3 The table gives information about the time, t minutes, spent on homework by pupils at a grammar school.
Class and frequency: $0 < t \le 10$: 2; $10 < t \le 20$: 12; $20 < t \le 40$: 60; $40 < t \le 50$: 24.
A histogram is drawn from this table. The bar for $20 < t \le 40$ is 6 cm tall.
Work out the height of the bar for $40 < t \le 50$.

(Total for Question 3 is 3 marks)

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Mark scheme · 4.1 Histograms and Frequency Density: 10-minute Pack

Question 1

identifies correct class width = 10 and divides 20 by 10	**M1**
frequency density = 2.0 cao	**A1**

Answer: 2.0

Question 2

uses area = height * width for each class	**M1**
calculates areas: 1.5*4 = 6; 3*3 = 9; 1*3 = 3	**M1**
frequencies 6, 9, 3 cao	**A1**

Answer: 6, 9, 3

Question 3

bar height is proportional to frequency density	**M1**
densities 3 and 2.4, giving a height scale of 6 / 3 = 2 cm per unit	**M1**
height = 4.8 cm	**A1**

Answer: 4.8 cm

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