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## AS Mathematics Exam Questions by Topic Chapter 15b: Histograms

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These questions are taken from the Specimen Exam materials and the real 2018 papers for the new syllabus AS and A-level mathematics courses and arranged by chapter of the textbooks by Goldie et al (available here: <https://amzn.to/39umfr5> and <https://amzn.to/3hE8kBL> ). There are a mixture of questions from OCR A, OCR B (MEI) and Edexcel. Although the style of questions varies a little across the exam boards the content of the syllabus is almost identical so these are suitable for students preparing for any exam board.

Free problem sets for all other chapters, as well as video solutions, full past papers and other content for GCSE and A-level maths can be found at:

<https://mathsaurus.com/>

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### OCR B MEI AS 2018 Paper 2 Question 2:

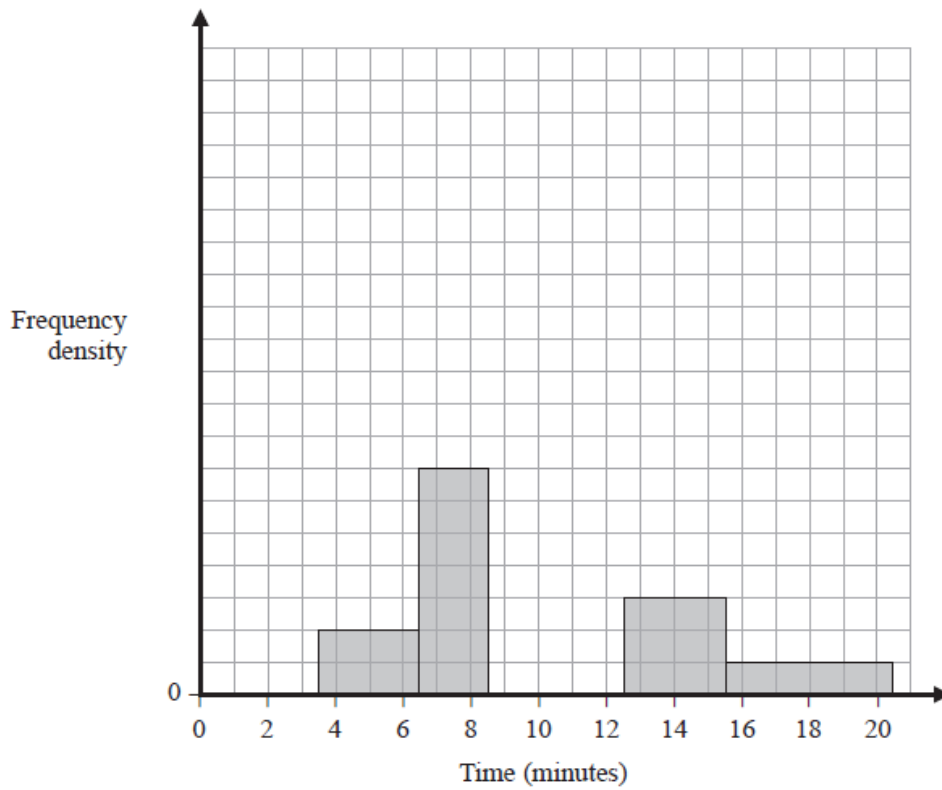
- 2 Doug has a list of times taken by competitors in a ‘fun run’. He has grouped the data and calculated the frequency densities in order to draw a histogram to represent the information. Some of the data are presented in Fig. 2.

Time in minutes	15 –	20 –	25 –	35 –	45 – 60
Number of runners	12	23	59	71	
Frequency density	2.4		5.9	7.1	1.4

**Fig. 2**

- (i) Write down the missing values in the copy of Fig. 2 in the Printed Answer Booklet. [2]
- (ii) Doug labels the horizontal axis on the histogram ‘time in minutes’ and the vertical axis ‘number of minutes per runner’. State which one of these labels is incorrect and write down a correct version. [1]
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2. The partially completed histogram and the partially completed table show the time, to the nearest minute, that a random sample of motorists was delayed by roadworks on a stretch of motorway.



Delay (minutes)	Number of motorists
4 – 6	6
7 – 8	
9	17
10 – 12	45
13 – 15	9
16 – 20	

Estimate the percentage of these motorists who were delayed by the roadworks for between 8.5 and 13.5 minutes.

(5)