

2. The following table summarises the distances, to the nearest km, that 134 examiners travelled to attend a meeting in London.

Distance (km)	Number of examiners
41–45	4
46–50	19
51–60	53
61–70	37
71–90	15
91–150	6

- (a) Give a reason to justify the use of a histogram to represent these data. (1)
- (b) Calculate the frequency densities needed to draw a histogram for these data.
(DO NOT DRAW THE HISTOGRAM) (2)
- (c) Use interpolation to estimate the median Q_2 , the lower quartile Q_1 , and the upper quartile Q_3 of these data. (4)

The mid-point of each class is represented by x and the corresponding frequency by f . Calculations then give the following values

$$\Sigma fx = 8379.5 \quad \text{and} \quad \Sigma fx^2 = 557489.75$$

- (d) Calculate an estimate of the mean and an estimate of the standard deviation for these data. (4)

One coefficient of skewness is given by

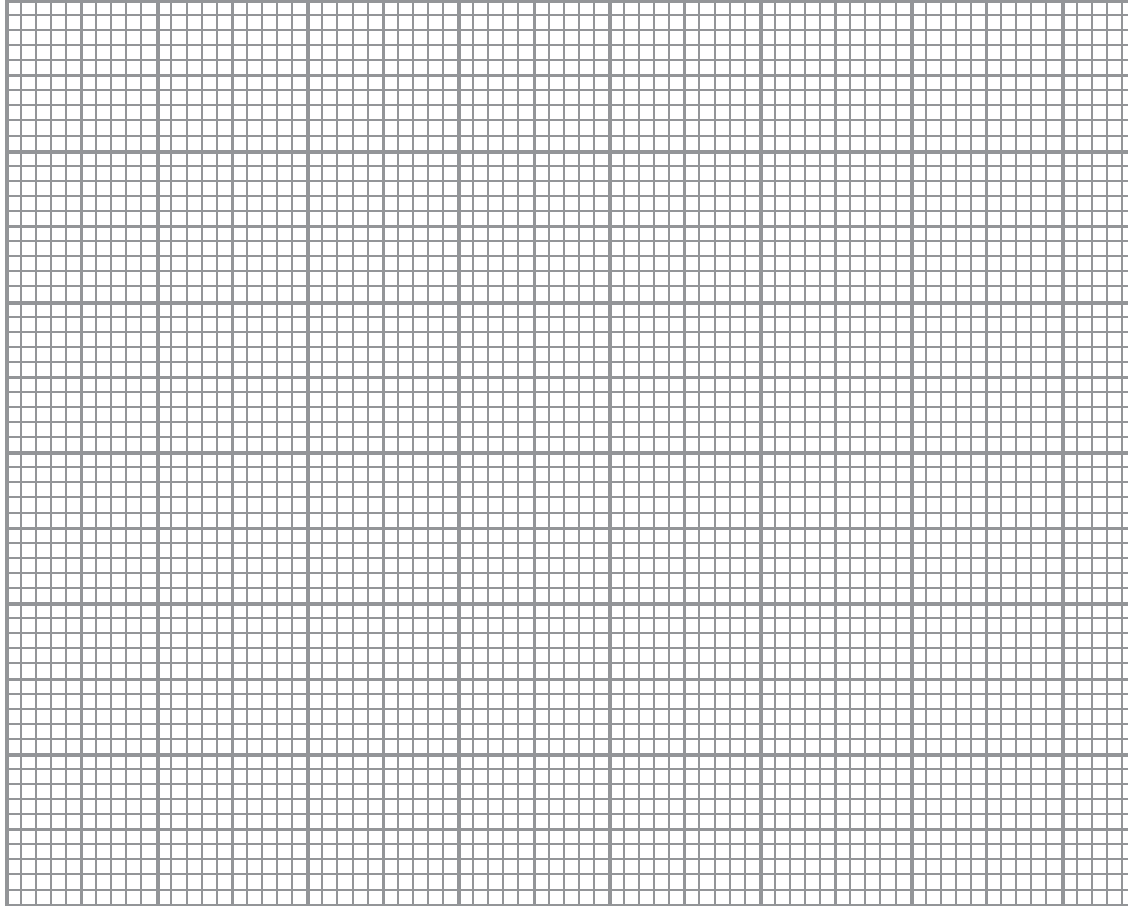
$$\frac{Q_3 - 2Q_2 + Q_1}{Q_3 - Q_1}$$

- (e) Evaluate this coefficient and comment on the skewness of these data. (4)
- (f) Give another justification of your comment in part (e). (1)



Question 4 continued

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(Total 10 marks)

Q4

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