1. The stem lengths of a sample of 120 tulips are recorded in the grouped frequency table below.

Stem length (cm)	Frequency
$40 \leqslant x < 42$	12
$42 \leqslant x < 45$	18
$45 \leqslant x < 50$	23
$50 \leqslant x < 55$	35
$55 \leqslant x < 58$	24
$58 \leqslant x < 60$	8

A histogram is drawn to represent these data.

The area of the bar representing the $40 \leqslant x < 42$ class is $16.5\,\text{cm}^2$

(a) Calculate the exact area of the bar representing the $42 \leqslant x < 45$ class.

(2)

The height of the tallest bar in the histogram is 10 cm.

(b) Find the exact height of the second tallest bar.

(3)

Q_1 for these data is 45 cm.

(c) Use linear interpolation to find an estimate for

(i) Q_2

(ii) the interquartile range.

(4)

One measure of skewness is given by

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

(d) By calculating this measure, describe the skewness of these data.

(2)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

Question 1 continued

Question 1 continued

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

Question 1 continued

(Total for Question 1 is 11 marks)