1. The back-to-back stem and leaf diagram on page 3 shows information about the running times of 31 Action films and 31 Comedy films.
The running times are given to the nearest minute.

(a) Write down the modal running time for these Action films.

(1)

Some of the quartiles for these two distributions are shown in the table below.

	Action films	**Comedy films**
Lower quartile	121	a
Median	b	117
Upper quartile	138	c

(b) Find the value of a, the value of b and the value of c

(3)

(c) For these Action films find, to one decimal place,

(i) the mean running time,

(ii) the standard deviation of the running times.

(You may use $\sum x = 4016$ and $\sum x^2 = 525056$ where x is the running time, in minutes, of an Action film.)

(3)

One measure of skewness is found using

$$\frac{\text{mean} - \text{mode}}{\text{standard deviation}}$$

(d) Evaluate this measure and describe the skewness for the running times of these Action films.

(2)

(e) Comment on one difference between the distribution of the running times of these Action films and the distribution of the running times of these Comedy films.
State the values of any statistics you have used to support your comment.

(1)

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Question 1 continued

Totals	Action films		Comedy films	Totals
(1)	0	9	2 2 3 5 8	(5)
(0)		10	3 5 6 6 8 9	(6)
(5)	9 8 6 4 2	11	0 2 4 6 7 9 9 9	(8)
(10)	9 9 8 7 6 5 4 3 1 0	12	1 2 4 6 6 7 7 7 7 8 9	(11)
(8)	8 7 7 7 5 4 2 1	13	1	(1)
(7)	7 7 6 6 4 3 1	14		(0)

Key: 0 | 9 | 2 means 90 minutes for an Action film and 92 minutes for a Comedy film

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Question 1 continued

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Question 1 continued

(Total for Question 1 is 10 marks)