**11** A biased six-sided dice is thrown several times. The results are shown in the table, where $a$ is a constant.

| Score $x$ | 1 | 2 | 3 | 4 | 5 | 6 |
|-----------|---|---|----|---|---|---|
| Frequency $f$ | 1 | 3 | 10 | 9 | 0 | $a$ |

You are given that the mean score is 3.4.

**(a) (i)** Find the value of $a$. **[3]**

**(ii)** Determine the standard deviation of the scores. You should use one of the formulae given on page 2. **[3]**

A fair 6-sided dice with faces numbered 1, 2, 3, 4, 5, 6 is thrown a large number of times, and the standard deviation $s$ of the scores is found.

**(b)** Without calculation, explain whether $s$ is likely to be larger, smaller, or about the same size as the standard deviation found in part **(a)(ii)**. **[1]**