4 A biased octagonal dice has faces numbered from 1 to 8. The discrete random variable X is the score obtained when the dice is rolled once. The probability distribution of X is shown in the table below.

x	1	2	3	4	5	6	7	8
$P(X = x)$	p	p	p	p	p	p	p	$3p$

(a) Determine the value of p. [2]

(b) Find the probability that a score of at least 4 is obtained when the dice is rolled once. [1]

The dice is rolled 30 times.

(c) Determine the probability that a score of 8 occurs exactly twice. [2]