The number of puncture repairs carried out each week by a small repair shop is recorded over a period of 40 weeks. The results are shown in the following table.

Number of repairs in a week	0	1	2	3	4	5	$\geqslant 6$
Number of weeks	6	15	9	6	3	1	0

(i) Calculate the mean and variance for the number of repairs in a week and comment on the possible suitability of a Poisson distribution to model the data. [3]

Records over a longer period of time indicate that the mean number of repairs in a week is 1.6. The following table shows some of the expected frequencies, correct to 3 decimal places, for a period of 40 weeks using a Poisson distribution with mean 1.6.

Number of repairs in a week	0	1	2	3	4	5	$\geqslant 6$
Expected frequency	8.076	12.921	10.337	5.513	2.205	a	b

(ii) Show that $a = 0.706$ and find the value of the constant b. [3]

(iii) Carry out a goodness of fit test of a Poisson distribution with mean 1.6, using a 10% significance level. [8]