

Question #222**Key: D and E**

For the Poisson distribution, the mean, λ , is estimated as $230/1000 = 0.23$.

# of Days	Poisson Probability	Expected # of Workers	Observed # of Workers	χ^2
0	0.794533	794.53	818	0.69
1	0.182743	182.74	153	4.84
2	0.021015	21.02	25	0.75
3 or more	0.001709	1.71	4	3.07
Total			1000	9.35

The χ^2 distribution has 2 degrees of freedom because there are four categories and the Poisson parameter is estimated (d.f. = $4 - 1 - 1 = 2$).

The critical values for a chi-square test with two degrees of freedom are shown in the following table.

Significance Level	Critical Value
10%	4.61
5%	5.99
2.5%	7.38
1%	9.21

9.35 is greater than 9.21 so the null hypothesis is rejected at the 1% significance level.