

**STAT 100 SUMMER II 2001 (PROFESSOR GREEN)
SOLUTIONS TO ASSIGNED PROBLEMS DUE
AUGUST 22**

Problem 2. The expected values are [25 25 25 25]. This gives a χ^2 statistic of 46.88 with three degrees of freedom and a P -value much smaller than .01, the smallest value available on the chart, and smaller in particular than .05. Thus the null hypothesis of equal likelihood of the four blood types is rejected.

Problem 4. The expected values are [50 50 50], giving a χ^2 statistic of 11.32. With two degrees of freedom, this gives a P value somewhat less than .01 so the null hypothesis that the three colors are equally popular is rejected at significance level .05.

Problem 6. The total number of flowers is 564. With the hypothetical frequencies of [.25 .5 .25], the expected values are [141 282 141]. This gives a χ^2 statistic of .862 with two degrees of freedom, for a P -value larger than .5. The observations do not contradict the Mendelian prediction to any significant extent.

Problem 8. With the given proportions, the expected values are

$$[428.72 \ 139.8 \ 37.28 \ 37.28 \ 74.56 \ 214.36]$$

. With five degrees of freedom, $\chi^2 = 156.18$ for a P value much less than .01. The null hypothesis that the local accidental deaths show the national pattern is strongly rejected.