

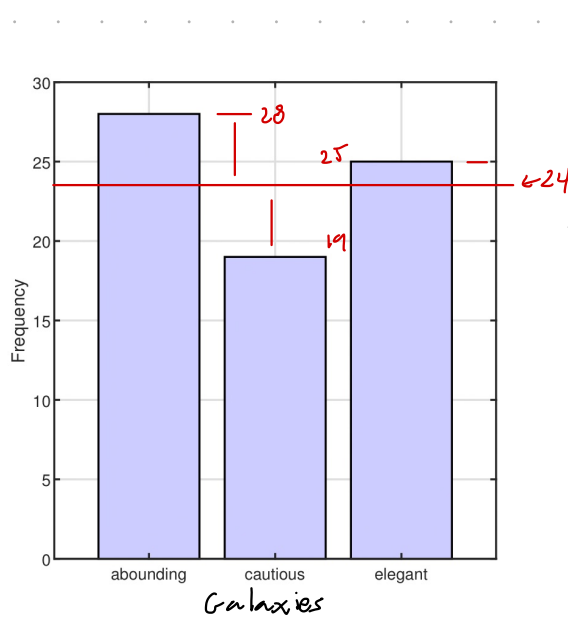
3) Suppose galaxies come in 3 varieties: abounding, cautious and elegant. You go out and find 72 galaxies and count how many fall into each variety. This generates the following table:

| observed frequencies of galaxies | | |
|----------------------------------|----------|---------|
| abounding | cautious | elegant |
| 28 | 19 | 25 |

Make a bar graph showing the frequencies for each variety of galaxies

Make a table of the expected frequencies.

Using an alpha value of $\alpha = 0.01$ test the null hypothesis that the 72 galaxies are distributed evenly across the 3 varieties of abounding, cautious and elegant.



expected frequencies

$$\frac{72}{3} = 24$$

$$\chi^2 = \sum \frac{(f_o - f_e)^2}{f_e}$$

$$= \frac{(28-24)^2}{24} + \frac{(19-24)^2}{24} + \frac{(25-24)^2}{24}$$

$$= 1.7501, df = 3-1 = 2$$

$p = .4168$
fail to reject H_0

"The frequencies of the 72 galaxies is not distributed unevenly across the three classes, $\chi^2(2, N=72) = 1.7501, p = .4168$ "