

True/False - No explanation needed. (2pts)

1. The Mendelian traits "color" and "height" in pea plants were shown in class to be independent using, among other things, the formula $M_{ij} = \frac{K_i L_j}{n}$ for the expected #occurrences of the traits. True/False
2. All the students should finish course evaluations. True/False

Problems - Need justification. No justification means **zero!**

Thanos claims that the infinite gauntlet is biased so that the probability of disintegrating a creature is $2/3$. He made an infinite-gauntlet-simulator to test his claim, and m of 300 creatures disintegrated when he snapped his finger. We want to test whether his claim is true or not by χ^2 -test.

1. Set a null hypothesis H_0 and an alternative hypothesis H_1 . (4pts)
2. By using χ^2 -test, find the rejection region for H_0 , i.e. find a region of m that we reject H_0 under $\alpha = 0.05$. You may use $\chi_{k=1}^2(r = 3.84) = 0.95$ or $\chi_{k=1}^2(r = 0.004) = 0.05$. Also, note that $256 = 16^2$. (6pts)