**HW5: One-Sample and Contingency Chi-Square**

1. You are given the following data concerning the relationship between education and type of community of orientation:

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| --- | --- | --- | --- |
|  | Community in Which Respondent Lived Most of the Time from Age 13 to 19 | | |
| Education | Rural Farm | Rural Nonfarm & Small Urban | Large Urban |
| Less than High School Grad. | 44 | 55 | 110 |
| High School Grad. | 88 | 165 | 265 |
| High School Plus Some Additional Education | 15 | 57 | 66 |

1. Test the statistical significance of the relationship shown in the above table. Use the 0.05 level to determine statistical significance. (Total 6 pts: State H0 & Ha (1 pt), chi square value (1 pt), degree of freedom (1 pt), Result: Reject or Accept H0 (1 pt), Type I error (1 pt), Type II error (1 pt))
2. Present a table of appropriate descriptive statistics showing the relationship shown in the above table. (5 pts)
3. Make your conclusions. (1 pt)
4. According to Mendelian inheritance theory, in crossing two kinds of peas, four types of seed, A, B, C, and D are expected to occur in the ration 9:3:3:1. In such an experiment, a researcher obtains 309 seeds with the following distribution.

|  |  |
| --- | --- |
| Types of Seed | # Seeds Observed |
| A | 175 |
| B | 63 |
| C | 54 |
| D | 17 |

1. Are these results consistent with the theory? Use 0.05 level to determine significance. (Total 6 pts: State H0 & Ha (1 pt), chi square value (1 pt), degree of freedom (1 pt), Result: Reject or Accept H0 (1 pt), Type I error (1 pt), Type II error (1 pt))
2. State your conclusions. (1 pt)