

Chapters 12 & 13 Written Project

Write up each test using the standard 5-step procedure.

1) Goodness-of-Fit

According to the manufacturer of M&Ms, 13% of the plain M&Ms in a bag should be brown, 14% yellow, 13% red, 24% blue, 20% orange, and 16% green. A student randomly selected a bag of plain M&Ms. He counted the number of M&Ms that were each color and obtained the results shown in the table. Test the claim that plain M&Ms follow the distribution stated by M&M/Mars at the 0.05 level of significance.

Color	Brown	Yellow	Red	Blue	Orange	Green
Frequency	61	64	54	61	96	64

2) Independence

Does amount of education play a role in the healthiness of an individual? A random sample of individuals were asked to rate their health. Here are the results, broken down by level of education. Test the claim that health is independent of level of education at the 0.05 level of significance.

	Excellent	Good	Poor
Less Than High School	72	202	62
High School Grads	465	877	108
College Grads	439	561	25

3) ANOVA

A researcher plans soybeans in three types of plots: Liberty, No till, and Chisel plowed. The data represent the number of pods on a random sample of soybean plants for the three plot types. At the 0.05 level of significance, test the claim that the mean number of pods is the same for all 3 plot types.

<u>Plot Type</u>	<u>Pods</u>								
Liberty	32	31	36	35	41	34	39	37	38
No till	34	30	31	27	40	33	37	42	39
Chisel plowed	34	37	24	23	32	33	27	34	30

4) Kruskal-Wallis

Here are the scores of randomly selected students on the Math 200, 230, and 21 finals. Use the 0.05 level of significance to test the claim that all 3 exams produce the same mean score.

Math 200	38	42	55	64	73	80	95
Math 230	65	74	77	83	85	90	
Math 21	80	82	85	89	94		