

Math 21 – Summer – Written Project 4 (Chapters 11-13)

1) In a study of a new wonder diet, a sample of 10 patients was taken. Here are there weights before and after.

Before	209	178	169	212	180	192	158	180	211	193
After	196	171	170	207	177	190	159	180	203	183

Test at the 0.01 level of significance the claim that this diet is effective, in other words, that the diet will reduce the weight of a person.

2) In 1990, 24.5% of Americans 25 years old and over had not graduated from high school, 48.9% held a high school diploma and 26.6% held at least an Associate's degree. A recent study of 440 Americans 25 years old and over showed that 89 had not graduated from high school, 208 were high school graduates and 143 held at least an Associate's degree. At the 0.05 level, test the claim that the 1990 proportions no longer hold true.

3) Here are the waiting times, in minutes, at the check-in counters for four different airlines at an airport for randomly selected fliers.

Airline A	Airline B	Airline C	Airline D
3	19	8	7
11	13	11	16
19	11	17	15
11	13	7	9
7		12	
10			

At the 0.05 level of significance, test the claim that the mean waiting time at the checkout counters of the four airlines are equal.

4) In a study of 1054 people who were 60 or older, New York City researchers found that 19 of the 459 women and 11 of the 595 men had lung cancer. At the 0.01 level of significance, test the claim that men over 60 are less likely to get lung cancer than women over 60.

5) A high school instructor is curious to see the effect that an open-notes policy would have on tests. He allows one of his classes to use their notes on their test, while his other class takes the test without them. Here are the scores.

With Notes

86, 95, 97, 98, 53, 84, 91, 64, 97, 97, 97, 84, 64, 94, 73

Without Notes

70, 92, 97, 50, 81, 97, 84, 61, 98, 98, 58, 23, 69, 84, 91, 78

At the 0.05 level, test the claim that the use of notes produces a higher mean test score.

6) A random sample of 483 workers asked how they saved things – in piles, in files, or some combination of both. Here are the results, broken down by gender.

	Piles	Files	Both
Male	78	138	69
Female	30	110	58

At the 0.05 level, test the claim that the technique used is independent of gender.