

## Final Review #1 Fall 2012

1.  
d = Before – After  
Ho:  $\mu_d = 0$  H<sub>1</sub>:  $\mu_d > 0$   
 $\alpha = 0.05$   
Paired Difference Test  
 $t = 2.61$ ,  $p - value = 0.012$   
Reject H<sub>0</sub>.  
There is sufficient evidence to conclude that the diet is effective.
2.  
(12.25,18.35)
3.  
#1: Male  
Ho:  $\mu_1 = \mu_2$  H<sub>1</sub>:  $\mu_1 > \mu_2$   
 $\alpha = 0.05$   
Two Mean Test  
 $t = 0.92$ ,  $p - value = 0.181$   
Fail to Reject H<sub>0</sub>.  
There is not sufficient evidence to conclude that the mean number of miles driven by males is greater than the mean number of miles driven by females.
4.  
Ho:  $p = .25$  H<sub>1</sub>:  $p < .25$   
 $\alpha = 0.01$   
One Proportion Test  
 $z = -1.47$ ,  $p - value = 0.0708$   
Fail to Reject H<sub>0</sub>.  
There is not sufficient evidence to conclude that less than 25% of all drivers turn on their headlights while driving in the rain.
5.  
(.095,.131)
6.  
#1: Nonsmokers  
Ho:  $p_1 = p_2$  H<sub>1</sub>:  $p_1 < p_2$   
 $\alpha = 0.05$   
Two Proportion Test  
 $z = -3.35$ ,  $p - value = 0.0004$   
Reject H<sub>0</sub>.  
There is sufficient evidence to conclude that nonsmokers are less likely to suffer with some sort of heart disease by the time they turn 60 years old.

7.

Ho:  $\mu_1 = \mu_2 = \mu_3$       H<sub>1</sub>: At least 1 mean is different than the others.

$\alpha = 0.05$

ANOVA

$F = 19.86$ ,  $p - value = 0.0002$

Reject H<sub>0</sub>.

There is sufficient evidence to conclude that at least 1 mean is different than the others.

8.

Ho: Grade and placement are independent      H<sub>1</sub>: Grade and placement are dependent

$\alpha = 0.05$

Independence

$\chi^2 = 5.25$ ,  $p - value = 0.0724$

Fail to Reject H<sub>0</sub>.

There is not sufficient evidence to conclude that grade and placement are dependent.

9.

Ho:  $p_C = 0.65$ ,  $p_V = 0.25$ ,  $p_L = 0.1$       H<sub>1</sub>: At least 1 proportion is different than claimed.

$\alpha = 0.01$

Goodness of Fit

E: 182, 70, 28

$\chi^2 = 19.28$ ,  $p - value < 0.0001$

Reject H<sub>0</sub>.

There is sufficient evidence to conclude that at least 1 proportion is different than claimed.

10.

Ho:  $\mu = 450$       H<sub>a</sub>:  $\mu > 450$

$\alpha = 0.05$

One Mean Test

$t = 1.20$ ,  $p - value = 0.1229$

Fail to Reject H<sub>0</sub>.

There is not sufficient evidence to conclude that the mean number of packages handled per day by new employees is more than 450 packages.