Final Review #2

1. **Conf Int, μ**
   $(13.33, 39.87)$

2. **One Mean**
   Ho: $\mu = 20$ H_1: $\mu < 20$
   $\alpha = 0.01$
   One Mean Test
   $t = -1.27$, $p - value = 0.106$
   Fail to Reject H_0.
   There is not sufficient evidence to conclude that the average monthly long distance bill is less than $20.

3. **Paired Difference**
   d = Before – After
   Ho: $\mu_d = 0$ H_1: $\mu_d > 0$
   $\alpha = 0.05$
   Paired Difference Test
   $t = 1.98$, $p - value = 0.0473$
   Reject H_0.
   There is sufficient evidence to conclude that the cameras have lowered the number of people running red lights.

4. **2 Proportion**
   #1: Highlander
   Ho: $p_1 = p_2$ H_1: $p_1 \neq p_2$
   $\alpha = 0.05$
   Two Proportion Test
   $z = 2.68$, $p - value = 0.0073$
   Reject H_0.
   There is sufficient evidence to conclude that the customer satisfaction rates are different for both models.

5. **Conf Int, p**
   $(0.655, 0.734)$

6. **Goodness of Fit**

Ho: $p_M = p_T = p_W = p_{Th} = p_F = 0.2$ H_1: At least 1 proportion is different than claimed

$\alpha = 0.05$

Goodness of Fit

E for each group is $362 \cdot .2 = 72.4$

$\chi^2 = 4.77,\ p - value = 0.3119$

Fail to Reject H_0.

There is not sufficient evidence to conclude that at least 1 proportion is different than claimed.

7. **ANOVA**

Ho: $\mu_1 = \mu_2 = \mu_3$ H_1: At least 1 mean is different than the others.

$\alpha = 0.05$

ANOVA

$F = 7.60,\ p - value = 0.0053$

Reject H_0.

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

8. **One Proportion**

Ho: $p = .2$ H_1: $p > .2$

$\alpha = 0.05$

One Proportion Test

$z = 1.58,\ p - value = 0.0567$

Fail to Reject H_0.

There is not sufficient evidence to conclude that more than 20% of all Americans smoke.

9. **One Mean**

Ho: $\mu = 10$ H_1: $\mu \neq 10$

$\alpha = 0.01$

One Mean Test

$t = -11.24,\ p - value < 0.0001$

Reject H_0.

There is sufficient evidence to conclude that the mean number of hours worked per week by high school students is different than10 hours per week.

10. **Independence**

Ho: Day of absence is independent of the shift H_1: Day of absence is dependent on the shift

$\alpha = 0.05$

Independence Test

$\chi^2 = 4.39,\ p - value = 0.3561$

Fail to Reject H_0.

There is not sufficient evidence to conclude that day of absence is independent of the shift.