Midterm

Thursday, October 22, 2020 10:49 AM

8) CI = stat ± 2·σ/√n
= 68 ± 1.96·1.18
= 68 ± 2.32

9)

Janet	Tom	Georgia	Peter
20%	60%	15%	5%
1/20	1/10	1/10	1/20
.01	.06	.015	.0025

(.1)/(.1+.06+.015+.0025) = .11

P = .11

10) a)

Coffee	Muffin
mean = 1.4	mean = 2.5
SD = .3	SD = .15

mean = 1.4 + 2.5 = 3.9 = mean
SD = .3 + .15 = .45 = SD

b) mean = 3.9 · 7 = 27.3 = mean
SD = .45 · 7 = 3.15 = SD

11) total = 2500
space = 1786
P = .7

.7 · 2500 = 1750 → 1750 < 1786 → there is a 0% chance of there not being enough space

13) H_0: The mean resting pulse rate of those who do not exercise is the same or less than those who do
$\mu_{not} \leq \mu_{do}$

H_1: The mean resting pulse rate of those who do not exercise is greater than those who do
$\mu_{not} > \mu_{do}$

Independent T:

DF = 16 + 12 − 2 = 26 → crit T = 1.71

t = (73.9 − 69.1)/√[(10.9²/16) + (8.2²/12)] = 4.8/√(7.425 + 5.603) = 4.8/3.609
= 1.329

1.329 < 1.71 → reject the null

We reject the null hypothesis that $\mu_{not} \leq \mu_{do}$ and accept the alternative that $\mu_{not} > \mu_{do}$

16) a) Y/X → $\sum(y_i - \bar{y})(x_i - \bar{x}) / (x_i - \bar{x})^2$ → $SX/X^2 = Y/X$

slope = 296446.059 / 147911.938 = 2.004 = slope

107.43 = (128.88)(2.004) + y
107.43 = 258.30 + y
y intercept = −150.87 This doesn't make sense because time has to be positive but I don't have enough time to fix it

b) For every unit increase in distance, time increases by 2.004

When distance = 0, time = −150.87

c) $XY / \sqrt{X^2 Y^2}$ → (147911.938 · 148287.811) / √(147911.938² · 148287.811²)
= 1

d) SSE = 1185784.23

It's the average error in times reported vs actual and then squared

e) Y = (103)(2.004) − 150.87
Y = 55.542

18) a) R^2 = .7480

b) slope = 7.079
Intercept = −28.53

As unemployed goes up 1, murders go up by 7.079

At 0 unemployment, there are −28.53 murders (this makes no sense, but I have no time)

c) I don't know and I'm out of time :(