

STA 6126 - Practice Problem Solutions - Part 2

①

QF.1. C QF.2. a QF.3. b

QF.4. P.4a) $H_0: \pi_M = \pi_F$ $H_A: \pi_M > \pi_F$ b) $H_0: \mu_w = \mu_r$ $H_A: \mu_w \neq \mu_r$

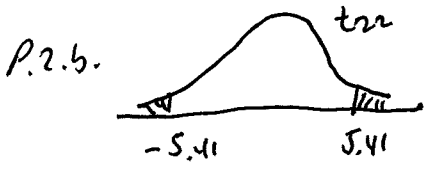
QF.5. C

QF.6. P.6.a. $\hat{\pi} = .530$ $SE = .0223$ $z = 1.35$ b) $P = .0885$ c) No

QF.7. F QF.8. F QF.9. T QF.10. .0091

QG.1. P.1.a. Independent/Numeric P.1.b. PAIRED/Nominal

QG.2. P.2.a. $\bar{y}_1 - \bar{y}_2 = 2000$ $SE = 369.68$ $t = 5.41$



P.2.c. > 2.074 $\mu_1 > \mu_2$
 < -2.074 $\mu_1 < \mu_2$
 Between $(-2.074, 2.074)$ NSD.

QG.3. $\bar{D} = 5.828$ $S_D = 3.9827$ $\frac{S_D}{\sqrt{n}} = .7396$ $t = 7.880$ $P\text{-value} = .000$
 95% CI: $(4.313, 7.343)$ Conclude: ii)

QG.4. T.S. $z = 2.58$ $P\text{-value} = .0098$ Conclude: ii)
 $(-.2119, -.1081)$

QG.5. $\hat{\pi}_M = .68$ $\hat{\pi}_F = .84$ $SE = .0265$ 95% CI: ~~$(.4081, .9519)$~~

QG.6. g QG.7. <

QG.8. $D_1 = -5$ $D_2 = -6$ $D_3 = -4$ $D_4 = -6$ $D_5 = -4$ $\bar{D} = -5$
 $S_d^2 = \frac{0^2 + 1^2 + 1^2 + 1^2 + 1^2}{5-1} = 1 = S_D$ $SE = \frac{1}{\sqrt{5}} = .447$

$t_{.025, 4} = 2.776$ 95% CI: $-5 \pm \frac{2.776(.447)}{-1.24} = (-6.24, -3.76)$

QG.9. $H_0: \pi_A = \pi_B$ $H_A: \pi_A \neq \pi_B$ $\hat{\pi}_A = .64$ $\hat{\pi}_B = .56$ $\hat{\pi} = .60$ $SE = .0219$
 TS: $z = 3.65$ $P\text{-value} = 2P(z \geq 3.65) \approx 0$ P.e. i)

QG.10. $H_0: \mu_P \leq \mu_T$ $H_A: \mu_P > \mu_T$ (2)

$\bar{y}_P - \bar{y}_T = 1.5$ $SE = 0.78$ $z = 1.92$ $P = .0274$

QG.11. C QG.12. d

QG.13. $\bar{y}_A = 42$ $s_A = 68$ $\bar{y}_B = 56$ $s_B = 74$ a) -14 b) 10.05 c) (-33.7, 5.7)

QG.14. $H_0: \pi_{pos} - \pi_{neg} = 0$ $H_A: \pi_{pos} - \pi_{neg} \neq 0$

$\hat{\pi}_P = 0.72$ $\hat{\pi}_N = 0.38$ $\hat{\pi} = .55$ $SE = 0.07084$ $z_{obs} = 4.83$

RR: $|z_{obs}| \geq z_{.025} = 1.96$

QG.15. F QG.16. T QG.17. F QG.18. F ($t_{.01,11} = 2.6025$)
 $t_{.005} > 2.6025$

QG.19. F QG.20. T

QG.21. $z = \frac{-10}{\sqrt{70}} = -1.20$ $P = .2302$

QG.22. a) $t_{.025,23} = 2.074$ 95% CI: (-11.11, 51.11) b) Larger

QG.23. a) \leq $>$ b) $t_{obs} = 8$ c) $|t_{obs}| \geq 2.131$ d) Yes

QG.24. d

QG.25. a)

M/F	F	0
F	300	260
0	240	200

$z_{obs} = 0.89$

b) Do not conclude proportions differ