8. $\hat{p}_1 = 0.55 \quad \hat{p}_2 = 0.6$

$$(\hat{p}_1 - \hat{p}_2) \pm z_{\frac{\alpha}{2}} \sqrt{\frac{\hat{p}_1(1-\hat{p}_1)}{n_1} + \frac{\hat{p}_2(1-\hat{p}_2)}{n_2}}.$$

$$= (0.55 - 0.6) \pm z_{0.025} \sqrt{\frac{0.55 \times 0.45}{100} + \frac{0.6 \times 0.4}{100}}$$

$$= -0.05 \pm 1.96 \times 0.07 = -0.05 \pm 0.14.$$

A10623280 林宇軒

1.

(1) $t_{0.025}(10) = 2.228$.

(2) $t_{0.95}(8) = -t_{0.05}(8) = -1.86$

(3) $\chi^2_{0.05}(12) = 21.028$

(4) $\chi^2_{\alpha}(5) = 1.26$. $\alpha = ?$

$\alpha = 0.95$.

(5) $\chi^2_{0.95}(10) = 3.94$.

(6) $F_{0.05}(5.8) = 3.69$

(7) $F_{0.95}(6.7) = \frac{1}{F_{0.05}(7.6)} = \frac{1}{4.26} = 0.238$

(8) $F_{\alpha}(6.6) = 4.28$

$\alpha = 0.05$.

7. (1) $\hat{p} = \frac{45}{80} = 0.56$

(2) $z_{\frac{\alpha}{2}}\sqrt{\frac{\hat{p}(1-\hat{p})}{n}}$

$= z_{0.025}\sqrt{\frac{0.56 \times 0.44}{80}}$

$= 1.96 \times 0.06 = 0.12$.

(3) $\hat{p} \pm z_{\frac{\alpha}{2}}\sqrt{\frac{\hat{p}(1-\hat{p})}{n}}$

$= 0.56 \pm 1.645 \times 0.06$

$= 0.56 \pm 0.1$

即 $(0.46, 0.66)$.

Subject: A10b230280 林宇軒 3/4 統計實習

2. $e = \frac{\sigma}{\sqrt{n}} \times z_{\frac{\alpha}{2}}$

(1) $\sigma = 3$. $e = 0.5$. $1-\alpha = 0.95$

$n = \left(\frac{3}{0.05}\right)^2 \times 1.96^2 = 138.3 \doteq 139$.

(2) $\sigma = 0.2$. $e = 0.03$ $1-\alpha = 0.9$

$n = \left(\frac{0.2}{0.03}\right)^2 \times 1.645^2 = 120.29 \doteq 121$.

(3). $\sigma = 0.05$. $e = 0.02$. $1-\alpha = 0.98$.

$n = \left(\frac{0.05}{0.02}\right)^2 \times 2.326^2 = 33.8 \doteq 34$.

10. (1) $\mu_1 - \mu_2 = \bar{x} - \bar{y} = 85 - 78 = 7$.

(2) $7 \pm 1.645\sqrt{\frac{454}{50} + \frac{146}{40}}$

$= 7 \pm 1.645 \times 2.59$

$= 7 \pm 4.26$

$\Rightarrow (2.74, 11.26)$.