Ch 6 習題

1.

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

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

(3) $\chi^2_{0.05}(12) = 21.03$

(4) $\alpha = 0.95$

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

(6) $F_{0.05}(5, 8) = 3.69$

(7) $F_{0.95}(6,7) = \frac{1}{F_{0.05}(7,6)} = \frac{1}{4.21} = 0.238$

(8) $\alpha = 0.05$

7.

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

(2) $z_{0.025}\sqrt{\frac{0.56 \cdot 0.44}{80}}$

$= 1.96 \times 0.06$

$= 0.12$

(3) $0.56 \pm z_{0.05}\sqrt{\frac{0.56 \cdot 0.44}{80}}$

$= 0.56 \pm 1.645 \times 0.06$

$= 0.56 \pm 0.1$

即 $(0.46, 0.66)$

8.

$\hat{p}_{男} = \frac{55}{100} = 0.55$

$\hat{p}_{女} = \frac{60}{100} = 0.6$

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

$= (-0.05) \pm 1.96 \times 0.07$

$= (-0.05) \pm 0.14$

即 $(-0.19, 0.09)$

21.

(1) $\hat{p} = \frac{105}{200} = 0.42$, $1 - \alpha = 0.9$

$z_{\frac{\alpha}{2}} = z_{0.05} = 1.645$

$0.42 \pm z_{0.05}\sqrt{\frac{0.42 \times 0.58}{250}}$

$= 0.42 \pm 1.645 \times 0.03$

$= 0.42 \pm 0.05$

即 $(0.37, 0.47)$

(2) $e = 0.03$, $1 - \alpha = 0.95$

$z_{\frac{\alpha}{2}} = z_{0.025} = 1.96$

a. $p = 0.3$

$n = (\frac{1.96}{0.03})^2 \cdot 0.3 \cdot 0.7 = 896.37$

$\doteq 897$

b. $\hat{p} = \frac{105}{200} = 0.42$

$n = (\frac{1.96}{0.03})^2 \cdot 0.42 \cdot 0.58 = 1039.99$

$\doteq 1040$

c. $p = 0.5$

$n = (\frac{1.96}{0.03})^2 (0.5)(0.5) = 1067.11$

$\doteq 1068$