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

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

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

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

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2| (1) $\hat{p} = \frac{105}{250} = 0.42$

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

$= 0.42 \pm 1.645 \times 0.03$

$= 0.42 \pm 0.05 \Rightarrow (0.37, 0.47)$.

(2) (a) $\hat{p} = 0.3$, $e = 0.03$ $1-\alpha = 0.95$.

$e = \frac{\sigma}{\sqrt{n}} \times z$

$n = \left(\frac{z}{e}\right)^2 \times \hat{p} \times (1-\hat{p})$

$n = \left(\frac{1.96}{0.3}\right)^2 (0.42)(0.58) \fallingdotseq 841$

(b) $\hat{p} = \frac{105}{250} = 0.42$. $n = \left(\frac{1.96}{0.03}\right)^2 \times 0.42 \times 0.58 = 1039.79 \fallingdotseq 1040$.

(c) $\hat{p} = 0.5$ $n = \left(\frac{1.96}{0.03}\right)^2 \times 0.5 \times 0.5 = 1067.11 \fallingdotseq 1068$.

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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 $(0.46, 0.66)$.