1. 六

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

(2) $t_{0.95}(8) = -t_{0.05}(8) = -1.86$ #
(1-0.05)

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

(4) $\chi^2_{\alpha}(15) = 7.26$
$\alpha = 0.95$ #

(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) $F_{\alpha}(6,6) = 4.28$
$\alpha = 0.05$ #

7.

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

(2) $Z_{\frac{\alpha}{2}}\sqrt{\frac{\hat{p}(1-\hat{p})}{n}} = Z_{0.025}\sqrt{\frac{0.56\times0.44}{80}} = 1.96 \times 0.06 = 0.12$ #

(3) $\hat{p} \pm Z_{\frac{\alpha}{2}}\sqrt{\frac{\hat{p}(1-\hat{p})}{n}} = 0.56 \pm Z_{0.05}\sqrt{\frac{0.56\times0.44}{80}} = 0.56 \pm 1.645 \times 0.06 = 0.56 \pm 0.1$
$\Rightarrow (0.46, 0.66)$ #

8.

$\hat{p}_1 = 0.55$, $\hat{p}_2 = 0.6$

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

$= (0.55 - 0.6) \pm Z_{0.025}\sqrt{\frac{0.55\times0.45}{100} + \frac{0.6\times0.4}{100}}$

$= (-0.05) \pm 1.96 \times 0.07 = (-0.05) \pm 0.14 \Rightarrow (-0.19, 0.09)$ #

21.

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

$0.42 \pm Z_{0.05}\sqrt{\frac{0.42\times0.58}{250}}$

$= 0.42 \pm 1.645 \times 0.03$

0.42 ± 0.05

$\Rightarrow (0.37, 0.47)$ #

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

(a) $n = \left(\frac{1.96}{0.03}\right)^2 (0.3)(0.7) = 896.37 \fallingdotseq 897$ #

(b) $n = \left(\frac{1.96}{0.03}\right)^2 (0.42)(0.58) = 1039.79 \fallingdotseq 1040$ #

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