

# Wee4 (ch.6)

$$1. 11) \pm_{0.025} (10) = 2.228$$

$$12) \pm_{0.95} (8) = -1.86$$

$$13) \chi^2_{0.05} (12) = 21.026$$

$$14) \chi^2_{\alpha} (15) = 7.26 \alpha$$

$$\alpha = 0.95$$

$$15) \chi^2_{0.95} (10) = 3.940$$

$$16) F_{0.05} (5,8) = 3.69$$

$$17) F_{0.95} (6,7) = \frac{1}{F_{0.05} (7,6)} = \frac{1}{4.21} = 0.238$$

$$18) F_{\alpha} (6,6) = 4.28$$

$$\alpha = 0.05$$

$$7. 11) \hat{p} = \frac{45}{80} = 0.56$$

$$12) Z_{\frac{\alpha}{2}} \sqrt{\frac{\hat{p}(1-\hat{p})}{n}} = Z_{0.025} \sqrt{\frac{0.56 \times 0.44}{80}}$$

$$= 1.96 \times 0.06$$

$$= 0.12$$

$$13) \hat{p} \pm Z_{\frac{\alpha}{2}} \sqrt{\frac{\hat{p}(1-\hat{p})}{n}}$$

$$= 0.56 \pm Z_{0.05} \sqrt{\frac{0.56 \times 0.44}{80}}$$

$$= 0.56 \pm 1.645 \times 0.06$$

$$= 0.56 \pm 0.1$$

$$\Rightarrow (0.46, 0.66)$$

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

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

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

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

$$= -0.05 \pm 0.14$$

$$\Rightarrow (-0.19, 0.09)$$

$$21. 11) \hat{p} = \frac{105}{250} = 0.42$$

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

$$= 0.42 \pm 1.645 \times 0.03$$

$$= 0.42 \pm 0.05$$

$$\Rightarrow (0.37, 0.47)$$

$$12)$$

$$a. \hat{p} = 0.3 \quad e = 0.03 \quad 1 - \alpha = 0.95$$

$$e = \frac{6}{\sqrt{n}} \times Z$$

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

$$n = \left( \frac{1.96}{0.03} \right)^2 \times 0.3 \times 0.7$$

$$= 896.37 \approx 897$$

$$b. \hat{p} = 0.42$$

$$n = \left( \frac{1.96}{0.03} \right)^2 \times 0.42 \times 0.58$$

$$= 1039.79 \approx 1040$$

$$c.$$

$$\hat{p} = 0.5$$

$$n = \left( \frac{1.96}{0.03} \right)^2 \times 0.5 \times 0.5$$

$$= 1067.11 \approx 1068$$