

解答

1. (1) $\bar{x} = 1.05$ (2) $u^2 = 7.08$
2. (1) $14.27 \leq \mu \leq 17.73$ (2) $-1.02 \leq \mu \leq 5.02$ (3) $-7.33 \leq \mu \leq -2.67$
3. $0.122 \leq p \leq 0.278$
4. $0.636 \leq p \leq 0.764$

解説

1. (1) $\bar{x} = \frac{3.25 + 2.29 + 1.45 + (-2.78)}{4} = 1.05$
 (2) $\bar{x}^2 = \frac{3.25^2 + 2.29^2 + 1.45^2 + (-2.78)^2}{4} = 6.41$
 $u^2 = \frac{4}{3}(6.41 - 1.05^2) = 7.08$
2. (1) $t_{13}(0.025) = 2.160$
 $\bar{x} - t_{13}(0.025)\sqrt{\frac{u^2}{14}} = 14.27, \quad \bar{x} + t_{13}(0.025)\sqrt{\frac{u^2}{14}} = 17.73$
 (2) $t_{12}(0.025) = 2.179$
 $\bar{x} - t_{12}(0.025)\sqrt{\frac{u^2}{13}} = -1.02, \quad \bar{x} + t_{12}(0.025)\sqrt{\frac{u^2}{13}} = 5.02$
 (3) $t_{10}(0.025) = 2.228$
 $\bar{x} - t_{10}(0.025)\sqrt{\frac{u^2}{11}} = -7.33, \quad \bar{x} + t_{10}(0.025)\sqrt{\frac{u^2}{11}} = -2.67$
3. $z_{0.025} = 1.960$
 $\hat{p} - z_{0.025}\sqrt{\frac{\hat{p}(1-\hat{p})}{100}} = 0.122, \quad \hat{p} + z_{0.025}\sqrt{\frac{\hat{p}(1-\hat{p})}{100}} = 0.278$
4. $\hat{p} = 0.7, z_{0.025} = 1.960$
 $\hat{p} - z_{0.025}\sqrt{\frac{\hat{p}(1-\hat{p})}{200}} = 0.636, \quad \hat{p} + z_{0.025}\sqrt{\frac{\hat{p}(1-\hat{p})}{200}} = 0.764$