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八. 7. 11. 13. 22. 26. 27

$$7. \frac{\sqrt{n}(\bar{x} - \mu)}{S} = \frac{\sqrt{10}(4.8 - 7)}{4} = -1.74$$

$$(1) u_{0.025} = 1.96 \quad |-1.74| < 1.96 \text{ 接受 } H_0$$

$$(2) u_{0.05} = 1.645 \quad -1.74 < 1.645 \text{ 拒绝 } H_0$$

$$(3) \frac{\sqrt{10}(4.8 - 2)}{4} = 2.21 > 1.645 \text{ 拒绝 } H_0$$

$$11. H_0: \mu \leq 19 \text{ mg} \leftrightarrow H_1: \mu > 19 \text{ mg} \quad \bar{x} = 20.8 \quad S^2 = 2.61 \quad n = 16$$

$$\frac{\sqrt{n}(\bar{x} - 19)}{S} = 4.46 > t_{15}(0.05) = 1.7531 \text{ 拒绝 } H_0. \text{ 有所提高}$$

$$13. S^2 = 1.02 \quad \frac{S^2}{\sigma^2} = 1.02 \quad \chi^2_{3}(0.025) = 9.348 \quad \chi^2_{3}(1-0.025) = 0.216$$

$$0.216 < 1.02 < 9.348 \text{ 接受 } H_0$$

22. 成组比较

$$\bar{x} = 31.75 \quad S_1^2 = 14.02 \quad \bar{y} = 27.92 \quad S_2^2 = 12.63 \quad m = n = 12$$

$$\frac{\bar{x} - \bar{y}}{\sqrt{\frac{(m-1)S_1^2 + (n-1)S_2^2}{m+n-2}}} \cdot \sqrt{\frac{mn}{m+n}} = 2.57 > t_{24-2}(0.025) = 2.0739 \text{ 有显著不同}$$

26. 成对比较

$$A - B = -0.8, -0.6, -0.3, 0.1, -1.1, 0.2, -0.3, -0.5, -0.5, -0.3$$

$$\bar{x} = -0.41 \quad S = 0.387 \quad n = 10$$

$$\frac{\sqrt{n}\bar{x}}{S} = -3.35 \quad |-3.35| > t_{10-1}(0.025) = 2.2622. \therefore \text{不可以}$$

$$27. (1) \bar{x}_1 = 1.752 \quad S_1^2 = 0.0264 \quad \bar{x}_2 = 2.507 \quad S_2^2 = 0.0264$$

$$(1) \frac{S_1^2}{S_2^2} = 1.29 \quad F_{12,9}(1-0.05) = \frac{1}{F_{9,12}(0.05)} = \frac{1}{2.8} = 0.36 \quad F_{12,9}(0.05) = 3.07$$

$$0.36 < 1.29 < 3.07 \text{ 接受 } H_0$$

$$(2) m = 13 \quad n = 12. \quad \left| \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{(m-1)S_1^2 + (n-1)S_2^2}{m+n-2}}} \sqrt{\frac{mn}{m+n}} \right| = 10.23 > t_{21}(0.05) = 1.725 \text{ 拒绝 } H_0$$