

p.229

No.  
Date

(1)

$$\begin{aligned} (1) \quad s^2 &= \frac{\sum (x_i - \bar{x})^2}{n-1} \\ &= \frac{\sum x_i^2 - n\bar{x}^2}{n-1} \\ &= \frac{1284 - 6 \times 4.33^2}{5} \\ &= \sqrt{10.38} = 3.22 \end{aligned}$$

$$(2) \quad 1 - \alpha = 0.9 \quad \frac{\alpha}{2} = 0.05$$

$$n-1 = 5$$

$$\chi^2_{\frac{\alpha}{2}}(n-1) = \chi^2_{0.05}(5) = 11.07$$

$$\chi^2_{1-\frac{\alpha}{2}}(n-1) = \chi^2_{0.95}(5) = 1.15$$

$$\begin{aligned} &\left( \sqrt{\frac{(n-1)s^2}{\chi^2_{\frac{\alpha}{2}}(n-1)}}, \sqrt{\frac{(n-1)s^2}{\chi^2_{1-\frac{\alpha}{2}}(n-1)}} \right) \\ &= \left( \sqrt{\frac{5 \times 10.38}{11.07}}, \sqrt{\frac{5 \times 10.38}{1.15}} \right) \\ &= (2.17, 6.12) \end{aligned}$$

$$(2) \quad (1) \quad n_1 = 9, \bar{x} = 7.67, s_1 = 9.27$$

$$n_2 = 9, \bar{y} = 6.78, s_2 = 21.15$$

$$v = \frac{\left( \frac{9.27^2}{9} + \frac{21.15^2}{9} \right)^2}{\left( \frac{9.27^2}{9} \right)^2 + \left( \frac{21.15^2}{9} \right)^2} = 10.46 \div 11$$

(2)

$$\begin{aligned} &\left( \sqrt{\frac{8 \times 9.27^2}{\chi^2_{0.05}(8)}}, \sqrt{\frac{8 \times 9.27^2}{\chi^2_{0.95}(8)}} \right) \\ &= \left( \sqrt{\frac{687.46}{15.51}}, \sqrt{\frac{687.46}{2.73}} \right) \\ &= (6.66, 15.87) \end{aligned}$$

$$(\bar{x} - \bar{y}) \pm t_{\frac{\alpha}{2}}(v) \sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}$$

$$= (7.67 - 6.78) \pm t_{0.05}(11) \sqrt{\frac{9.27^2}{9} + \frac{21.15^2}{9}}$$

$$= 0.89 \pm 2.201 \times 7.70 = 0.89 \pm 16.95$$

$$(3) \quad \left( \frac{s_1^2}{s_2^2} \times \frac{1}{F_{\frac{\alpha}{2}}(n_1-1, n_2-1)}, \frac{s_1^2}{s_2^2} \times \frac{1}{F_{1-\frac{\alpha}{2}}(n_1-1, n_2-1)} \right)$$

$$= \left( \frac{9.27^2}{21.15^2} \times \frac{1}{3.44}, \frac{9.27^2}{21.15^2} \times \frac{1}{3.44} \right)$$

$$= (0.06, 0.66)$$