

Question #6

⑨ From data, we get $\bar{x} = 13.154$, $S = 6.479$, $n = 13$

$$\begin{aligned}\text{Confidence interval} &= \bar{x} \pm t_{\alpha/2} \frac{S}{\sqrt{n}} \\ &= 13.154 \pm 2.179 \times \frac{6.479}{\sqrt{13}} \\ &= 13.154 \pm 2.179 \times 1.797 \\ &= 13.154 \pm 3.9151 \\ &= (13.154 - 3.9151, 13.154 + 3.9151) \\ &= \underline{\underline{(9.239, 17.069)}}\end{aligned}$$

⑩ After removed 5, 8, 15, we get $\bar{x} = 14.3$, $S = 6.617$, $n = 10$

$$\begin{aligned}\text{Confidence interval} &= \bar{x} \pm t_{\alpha/2} \frac{S}{\sqrt{n}} \\ &= 14.3 \pm 2.262 \times \frac{6.617}{\sqrt{10}} \\ &= 14.3 \pm 2.262 \times 2.093 \\ &= 14.3 \pm 4.7337 \\ &= (14.3 - 4.7337, 14.3 + 4.7337) \\ &= \underline{\underline{(9.566, 19.034)}}\end{aligned}$$