9. (1) $s=\sqrt{\dfrac{\sum_{i=1}^{n}(x_i-\bar{x})^2}{n-1}}$

$=\sqrt{\dfrac{\sum x_i^2-n\bar{x}^2}{n-1}}$

$=\sqrt{\dfrac{1284-6\times 14.33^2}{5}}$

$=\sqrt{10.38}$

$=3.22$

(2) $1-\alpha=0.9$

$\dfrac{\alpha}{2}=0.05 \quad n-1=5$

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

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

$\therefore \left(\sqrt{\dfrac{5\times 10.38}{\chi^2_{0.05}(5)}},\ \sqrt{\dfrac{5\times 10.38}{\chi^2_{0.95}(5)}}\right)$

$=\left(\sqrt{\dfrac{51.9}{11.07}},\ \sqrt{\dfrac{51.9}{1.15}}\right)$

$=(2.17,\ 6.72)$

20.

(2) $1-\alpha=0.9$. $\chi^2_{\frac{\alpha}{2}}(n_1-1)=\chi^2_{0.05}(8)=15.51$.

$\chi^2_{1-\frac{\alpha}{2}}(n_1-1)=\chi^2_{0.95}(8)=2.73$

$\therefore \left(\sqrt{\dfrac{8\times 9.27^2}{\chi^2_{0.05}(8)}},\ \sqrt{\dfrac{8\times 9.27^2}{\chi^2_{0.95}(8)}}\right)=\left(\sqrt{\dfrac{687.46}{15.51}},\ \sqrt{\dfrac{687.46}{2.73}}\right)$.

$=(6.66,\ 15.87)$

(3) $1-\alpha=0.9$ $F_{\frac{\alpha}{2}}(n_1-1,n_2-1)=F_{0.05}(8,8)=3.44$.

$F_{1-\frac{\alpha}{2}}(n_1-1,n_2-1)=F_{0.95}(8,8)=\dfrac{1}{F_{0.05}(8,8)}=0.29$.

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

$=\left(\dfrac{9.27^2}{21.15^2}\times\dfrac{1}{3.44},\ \dfrac{9.27^2}{21.15^2}\times\dfrac{1}{0.29}\right)$

$=(0.06,\ 0.66)$.