9.

(1)

$$s=\sqrt{\frac{\sum_{i=1}^{n}(x_i-\bar{x})^2}{n-1}}=\sqrt{\frac{\sum x_i^2-n\bar{x}^2}{n-1}}$$

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

$$=\sqrt{10.38}=3.22$$

(2)

$\boxed{\text{卡方分配}}$

$1-\alpha=0.9,\ \frac{\alpha}{2}=0.05,\ n-1=5$

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

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

$$\left(\sqrt{\frac{(n-1)s^2}{\chi^2_{\frac{\alpha}{2}}(n-1)}},\ \sqrt{\frac{(n-1)s^2}{\chi^2_{1-\frac{\alpha}{2}}(n-1)}}\right)$$

$$=\left(\sqrt{\frac{5\times 10.38}{11.07}},\ \sqrt{\frac{5\times 10.38}{1.15}}\right)$$

$$=(2.17,\ 6.12)$$

20.

(1)
$$V=\frac{\left(\frac{s_1^2}{n_1}+\frac{s_2^2}{n_2}\right)^2}{\frac{\left(\frac{s_1^2}{n_1}\right)^2}{(n_1-1)}+\frac{\left(\frac{s_2^2}{n_2}\right)^2}{(n_2-1)}}$$

$n_1=9,\ \bar{x}=7.67,\ s_1=9.27$

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

$$V=\frac{\left(\frac{9.27^2}{9}+\frac{21.15^2}{9}\right)^2}{\frac{\left(\frac{9.27^2}{9}\right)^2}{8}+\frac{\left(\frac{21.15^2}{9}\right)^2}{8}}=10.96\fallingdotseq 11$$

$$(\bar{x}-\bar{y})\pm t_{\frac{\alpha}{2}}(v)\sqrt{\frac{s_1^2}{n_1}+\frac{s_2^2}{n_2}}=(7.67-6.78)\pm t_{0.025}(11)\sqrt{\frac{9.27^2}{9}+\frac{21.15^2}{9}}$$

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

20

(2)
$$\left(\sqrt{\frac{8\times 9.27^2}{\chi^2_{0.05}(8)}},\ \sqrt{\frac{8\times 9.27^2}{\chi^2_{0.95}(8)}}\right)$$

$$=\left(\sqrt{\frac{687.46}{15.51}},\ \sqrt{\frac{687.46}{2.73}}\right)$$

$$=(6.66,\ 15.87)$$

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

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

$$=(0.06,\ 0.66)$$