Nicholas Boyd

1]

21.1) Matched pairs

21.2) Matched pairs

21.3) Single sample

21.4) Two independent samples

2] a) $S_1 = 0.05 \quad S_2 = 0.03$

b) $df = 24$ (Conservative $df = n - 1$)

c)

$$\bar{X}_1 - \bar{X}_2 \pm t\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}$$

$$0.25 - 0.12 \pm 2.064\sqrt{\frac{0.05^2}{25} + \frac{0.03^2}{25}}$$

We are 95% confident that the true mean difference lies between 0.1059 and 0.1541

3) a) $df = 22$

b) t test statistic

$$\frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}} \qquad \frac{4.61 - 6.68}{\sqrt{\frac{3.08^2}{23} + \frac{3.45^2}{23}}}$$

$t = -2.146$

c) H_0 :