1.

$H_0 : m \geq 198$

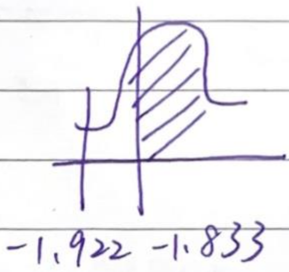
$H_1 = m < 198$

$\alpha = 0.05$

$t_{0.05(9)} = -1.833$

$$\frac{190-198}{\frac{13.16}{\sqrt{10}}} = -1.922$$

拒絕 H_0 ⇒ 合格



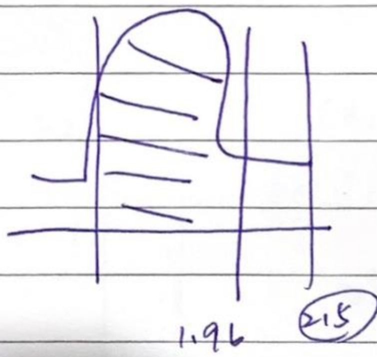
2. $H_0 = m = 420$

$H_1 = m \neq 420$

$\alpha = 0.05 \quad \frac{\alpha}{2} = 0.025$

$Z_{0.025} = 1.96$

$$\frac{423-420}{\frac{12}{\sqrt{100}}} = 2.15$$



拒絕 H_0 ⇒

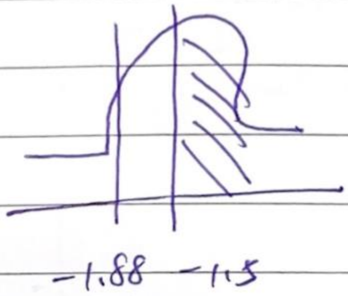
3、

$H_0 : 3 \geq 70$

$H_1 : m < 70$

$Z_{0.03} = -1.88$

$$\frac{68.15 - 70}{\frac{6}{\sqrt{36}}} = -1.15$$



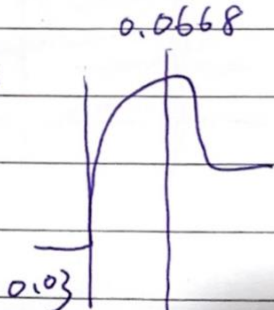
不拒絕 H_0 ⇒ 成績沒有不如往年

4、

$P < Z(-1.15)$

$= 0.0668 > 0.03$

⇒ 不拒絕 H_0



5.

$H_0 = m \le 1.5$

$H_1 = m > 1.5$

$t_{0.05}(4) = 2.132$

$$\frac{1.52 - 1.5}{\frac{0.019}{\sqrt{5}}} = 2.354$$

拒絕 H_0 ⇒ 超標不合格.

例 7.11 P.253

(1) $H_0 = \frac{\sigma_1^2}{\sigma_2^2} = 1$, $H_1 = \frac{\sigma_1^2}{\sigma_2^2} \neq 1$

(2) $\alpha = 0.1$

(3) $C = \{F < F_{1-\frac{\alpha}{2}}(n_1-1, n_2-1)$ 或

$F > F_{\frac{\alpha}{2}}(n_1-1, n_2-1)\}$

$= \{F < F_{0.95}(9,7)$ 或 $F > F_{0.05}(9,7)\}$

$= \{F < 0.304$ 或 $F > 3.68\}$

(4) $F = \frac{S_1^2}{S_2^2} = \frac{0.653^2}{0.627^2} = 1.085$

我們不拒絕虛無假設說明二種品牌的使用对嬰兒体重成長的變異數,並沒有太大的差異.

例7.13 p.256

(1) $H_0: p_1 - p_2 \le 0$, $H_1: p_1 - p_2 > 0$

(2) $\alpha = 0.05$

(3) $C = \{Z > Z_\alpha\} = \{Z > 1.645\}$

(4) $n_1 = 200$ $n_2 = 150$ $X = 108$ $Y = 78$ $\hat{p}_1 = 0.54$

$\hat{p}_2 = 0.52$

$$\bar{p} = \frac{X+Y}{n_1+n_2} = \frac{108+78}{200+150} = 0.531$$

$$Z = \frac{\hat{p}_1 - \hat{p}_2}{\sqrt{\bar{p}(1-\bar{p})\left(\frac{1}{n_1}+\frac{1}{n_2}\right)}} = \frac{0.54-0.52}{\sqrt{0.531(1-0.531)\left(\frac{1}{200}+\frac{1}{150}\right)}} = 0.371$$

我們不拒絕虛無假設

即男性投保意外險的比例沒有

多於女性