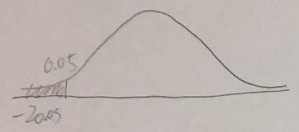
7.1

(1) $H_0: \mu \geq 350$, $H_1: \mu < 350$

(2) $\alpha = 0.05$

(3) 棄部域 $C = \{Z < -z_{0.05}\} = \{Z < -1.645\}$

(4) $Z = \frac{\bar{x}-\mu_0}{\frac{s}{\sqrt{n}}} = \frac{347.188-350}{\frac{6.290}{\sqrt{32}}} = -2.529$



Reject H_0 #

7.2

$p\text{-值} = P(Z < -2.537)$

$\cong P(Z < -2.54)$

$= 0.0055 < \alpha$

∴ 我們棄卻虛無假設

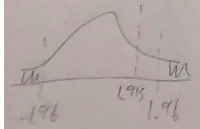
7.3

$H_0: \mu = 30$, $H_1: \mu \neq 30$

$\alpha = 0.05$

$C = \{|Z| > z_{0.025}\} = \{|Z| > 1.96\}$

$\frac{30.563-30}{\frac{2.354}{\sqrt{64}}} = 1.913$



Accept H_0 #

7.4

$p\text{-值} = 2P(Z > 1.913)$

$\cong 2P(Z > 1.91)$

$= 2 \times 0.0281$

$= 0.0562 > \alpha$

Accept H_0

7.5

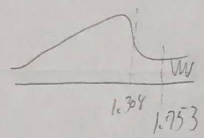
$H_0: \mu \leq 55$

$H_1: \mu > 55$

$\alpha = 0.05$

$C = T > t_{0.05}(15) = T > 1.753$

$T = \frac{\bar{x}-\mu_0}{\frac{s}{\sqrt{n}}} = \frac{59.312-55}{\frac{13.587}{\sqrt{16}}} = 1.308$



Accept H_0

$P(T > 1.308)$

$\cong P(T > 1.31)$

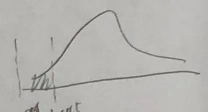
Accept H_0

7.6

$H_0: \mu_1 - \mu_2 \geq 0$

$H_1: \mu_1 - \mu_2 < 0$

$\alpha = 0.05$



$C = Z < z_\alpha = Z < -1.645$

$\frac{6.98-7.20}{\sqrt{\frac{0.28^2}{200}+\frac{0.57^2}{180}}} = -2.801$

Reject H_0 #

7.7

$H_0: \mu_1 - \mu_2 = 0$

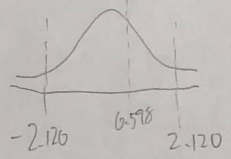
$H_1: \mu_1 - \mu_2 \neq 0$

$\alpha = 0.05$

$C = |T| > t_{0.025}(16) = |T| > 2.120$

$S_p = \sqrt{\frac{9 \times 0.653^2 + 7 \times 0.629^2}{10+8-2}} = 0.642$

$T = \frac{7.928-7.546}{0.642\sqrt{\frac{1}{10}+\frac{1}{8}}} = 0.598$



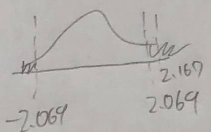
∴ Accept H_0 #

7.8

$H_0: \mu_1 - \mu_2 = 0$

$H_1: \mu_1 - \mu_2 \neq 0$

$\alpha = 0.05$



$V = \frac{\left(\frac{4.82^2}{12}+\frac{8.54^2}{15}\right)^2}{\frac{\left(\frac{4.82^2}{12}\right)^2}{12-1}+\frac{\left(\frac{8.54^2}{15}\right)^2}{15-1}} = 22.773 \doteq 23$

$C = |T| > t_{0.025}(23) = |T| > 2.069$

$T = \frac{78.25-72.60}{\sqrt{\frac{4.82^2}{12}+\frac{8.54^2}{15}}} = 2.167$

Reject H_0 #

7.9

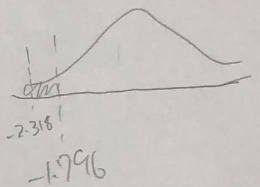
$H_0: \mu - \mu_2 \geq 0$

$H_1: \mu_1 - \mu_2 < 0$

$\alpha = 0.05$

$C = T < -t_{0.05}(11) = T < -1.796$

$T = \frac{-3.5-0}{\frac{5.231}{12}} = -2.318$ #



Reject H_0 #