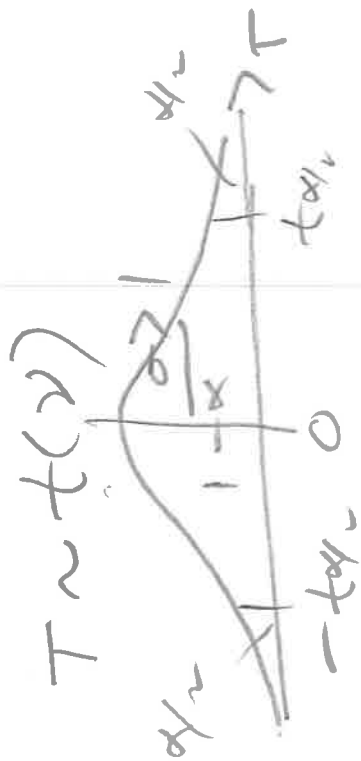
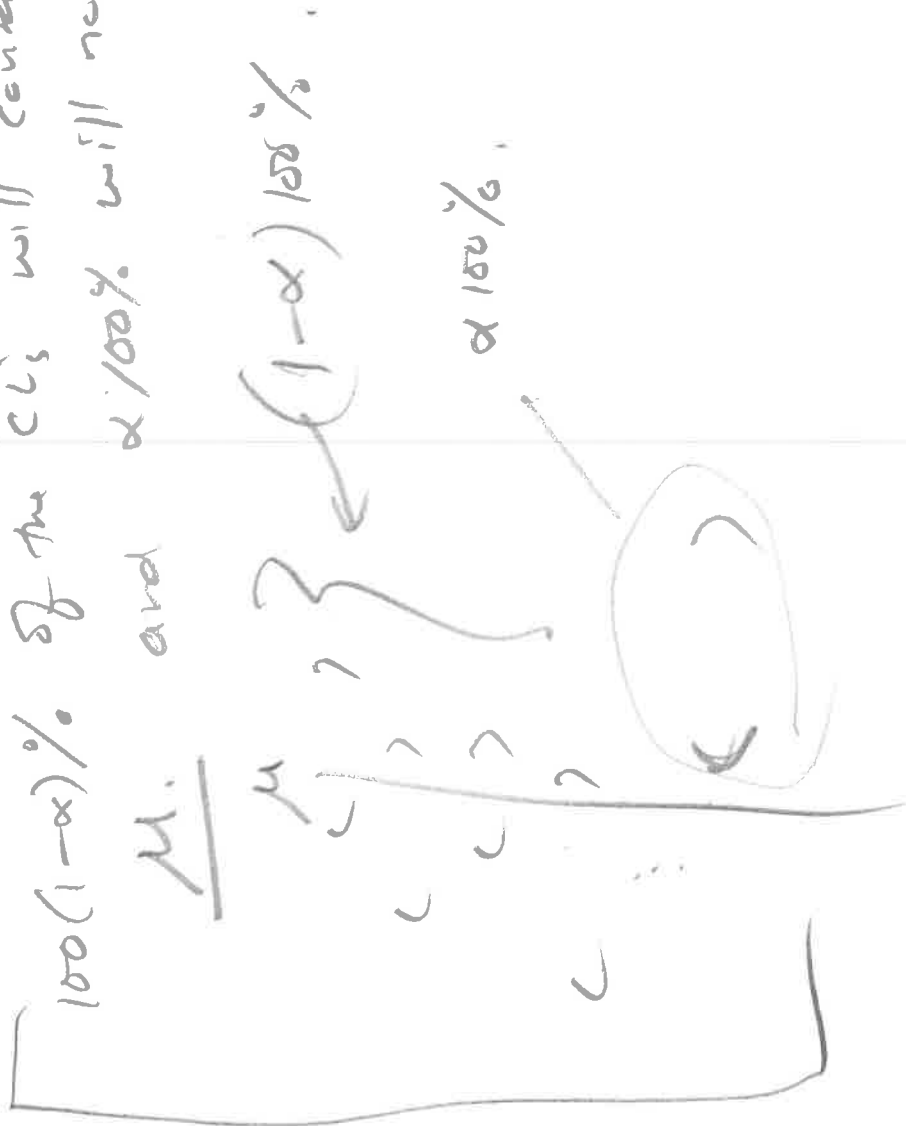


c.i. ①



$100(1-\alpha)\%$  of the c.i.s will contain  $\mu$  and  $\alpha/100\%$  will not.



2

$100(1-\alpha)\%$  c.i for  $\mu$

margin of error

$\bar{x} \pm t_{\alpha/2} \frac{s}{\sqrt{n}}$

$\uparrow$   $\uparrow$   $\uparrow$

$\mu_{est}$   $t_{mult.}$   $std\ error$

$\mu_1 - \mu_2$

3

Pop 2

$Y_i \sim N(\mu_2, \sigma_2^2)$

$n_2$   
 $Y_2, \dots, Y_{n_2}$

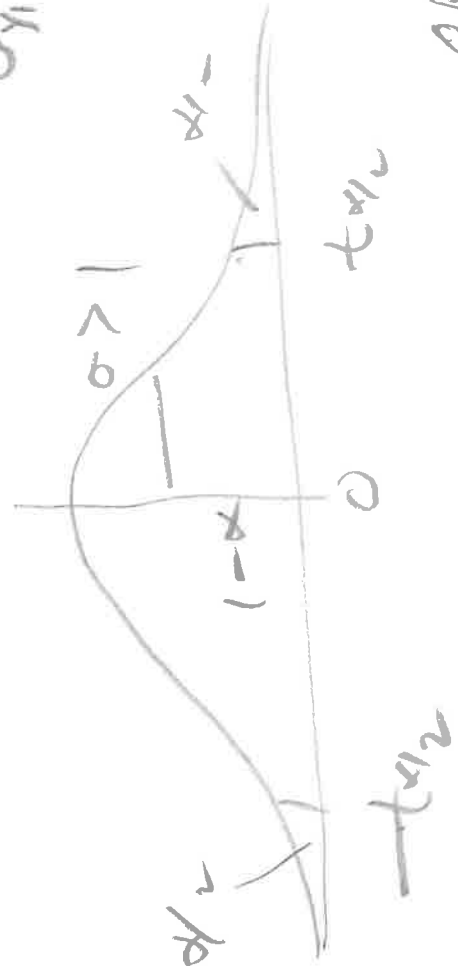
Pop 1

$Y_i \sim N(\mu_1, \sigma_1^2)$

$n_1$   
 $Y_1, \dots, Y_{n_1}$

indep

$$T = \frac{\bar{Y}_1 - \bar{Y}_2 - (\mu_1 - \mu_2)}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}} \rightarrow \chi^2 = \frac{n_1 + n_2 - 2}{100(1-\alpha)\% \text{ c.i. for } \mu_1 - \mu_2}$$



$$\begin{cases} \sigma_1^2 \neq \sigma_2^2 \\ \sigma_1^2 = \sigma_2^2 \end{cases}$$

options  
1. t-test

4

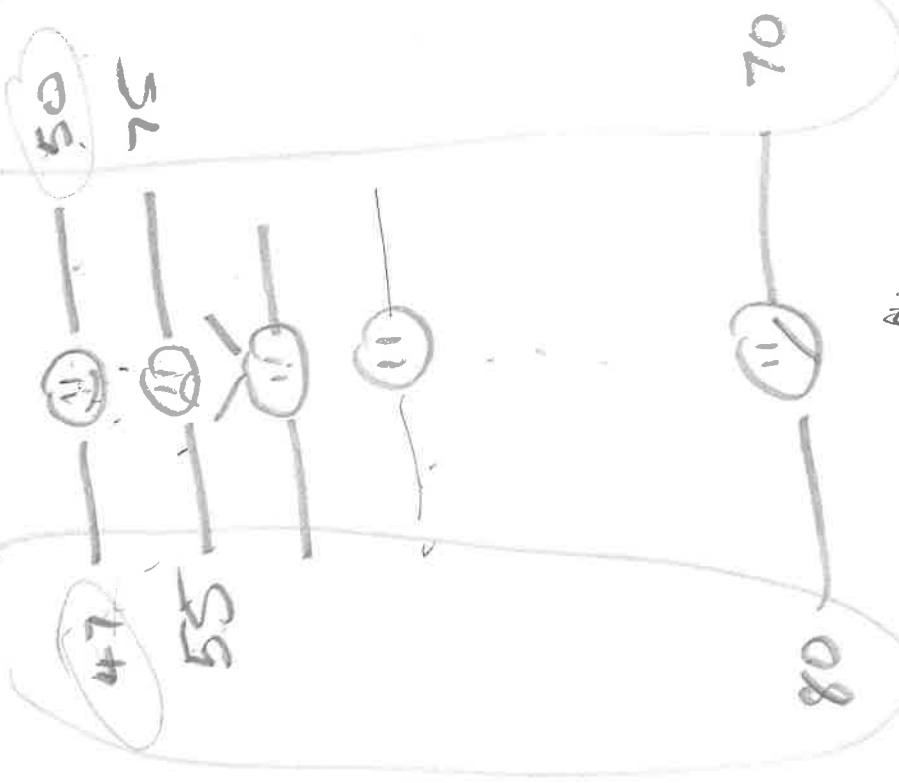
Paired Data

$Y_1$

$Y_2$

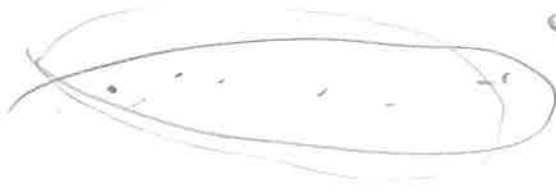
Ex: 1

Ex: 2



t-test ( $Y_1, Y_2$ , paired = TRUE)

$$diff = d = Y_2 - Y_1$$



$$\mu_2 \neq \mu_1$$
$$\underline{\mu_2 - \mu_1}$$

t-test (diff)