$X \sim N(5;1)$

$x_1 \cdots \cdots x_{30}$

$\bar{X} = 4{,}983481$

$H_0: \mu = 5$

$H_1: \mu \neq 5$

$1-\alpha$

$n = 30$

$n-1 = 29$

```
> t.test(x,mu = 5,conf.level = 0.95)

        One Sample t-test

data:  x
t = -0.092535, df = 29, p-value = 0.9269
alternative hypothesis: true mean is not equal to 5
95 percent confidence interval:
 4.618363 5.348598
sample estimates:
mean of x
 4.983481
```

$T_e = -0{,}092535$

$IC(4{,}618363;\ 5{,}348598)$

$H_0: \mu \geq 5$

$H_1: \mu < 5 \rightarrow$ CFIS

CORRECTO

$H_0: \bar{X} = 5$

$H_1: \bar{X} \neq 5$

ERROR CONCEPTUAL

NO ES CORRECTO

$$\text{P-VALUE} = P\left(|T_{29}| \geq \underbrace{T_e}_{-0{,}092535}\right)$$

$$= P\left(T_{29} \geq -0{,}092535\right)$$

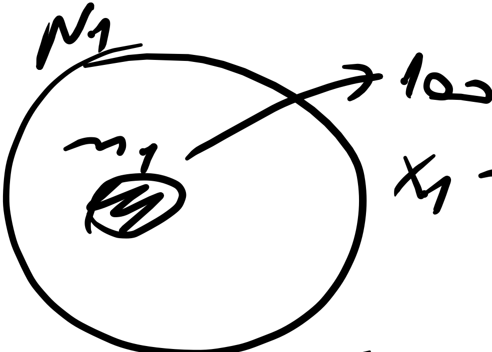
$$+ P\left(T_{29} \leq 0{,}092535\right)$$

$$= 0{,}9269 > \alpha = 0{,}05$$

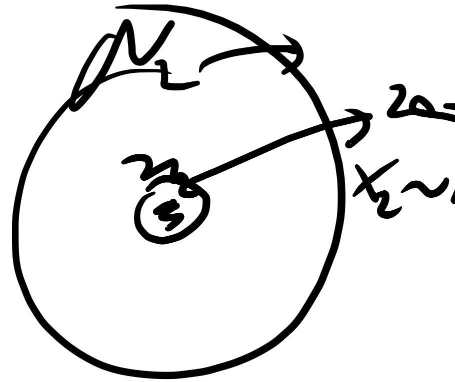
$$\Longrightarrow \text{NORHo} \Rightarrow \underline{\underline{\mu = 5}}$$

$H_0: \mu_1 - \mu_2 = 0$ no es significativo

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



$X_1 \sim N(5, 2)$



$X_2 \sim N(0, 1)$

$$T_e = \frac{(\bar{x}_1 - \bar{x}_2) - (\mu_1 - \mu_2)}{\sqrt{S_a^2 \cdot \left(\frac{1}{n_1} + \frac{1}{n_2}\right)}} \sim t_{n_1+n_2-2}$$

```
> t.test(x,y,var.equal = TRUE)

        Two Sample t-test

data:  x and y
t = -5.607, df = 298, p-value = 0.00000004697
alternative hypothesis: true difference in means is not equal to 0
95 percent confidence interval:
 -1.340477 -0.643968
sample estimates:
mean of x mean of y
 5.012813  6.005036
```

$$H_0: \mu_1 - \mu_2 = 1 \Rightarrow \mu_1 = \mu_2 + 1$$

$$H_1: \mu_1 - \mu_2 \neq 1$$

$$H_0: \frac{\sigma_2^2}{\sigma_1^2} = 1 \Rightarrow \sigma_2^2 = \sigma_1^2 \Rightarrow \sigma_2^2 - \sigma_1^2 = 0$$

→ HOMOCEDASTICIDAD

$$H_1: \frac{\sigma_2^2}{\sigma_1^2} \neq 1$$

→ HETEROCEDASTICIDAD

$$\underline{(\bar{X}_1 - \bar{X}_2)} \pm t_{n_1+n_2-2;\,1-\frac{\alpha}{2}} \cdot \sqrt{S^2_a\left(\frac{1}{n_1}+\frac{1}{n_2}\right)}$$

$$\hat{\theta} \pm k \cdot \sqrt{\mathrm{Var}(\hat{\theta})}$$