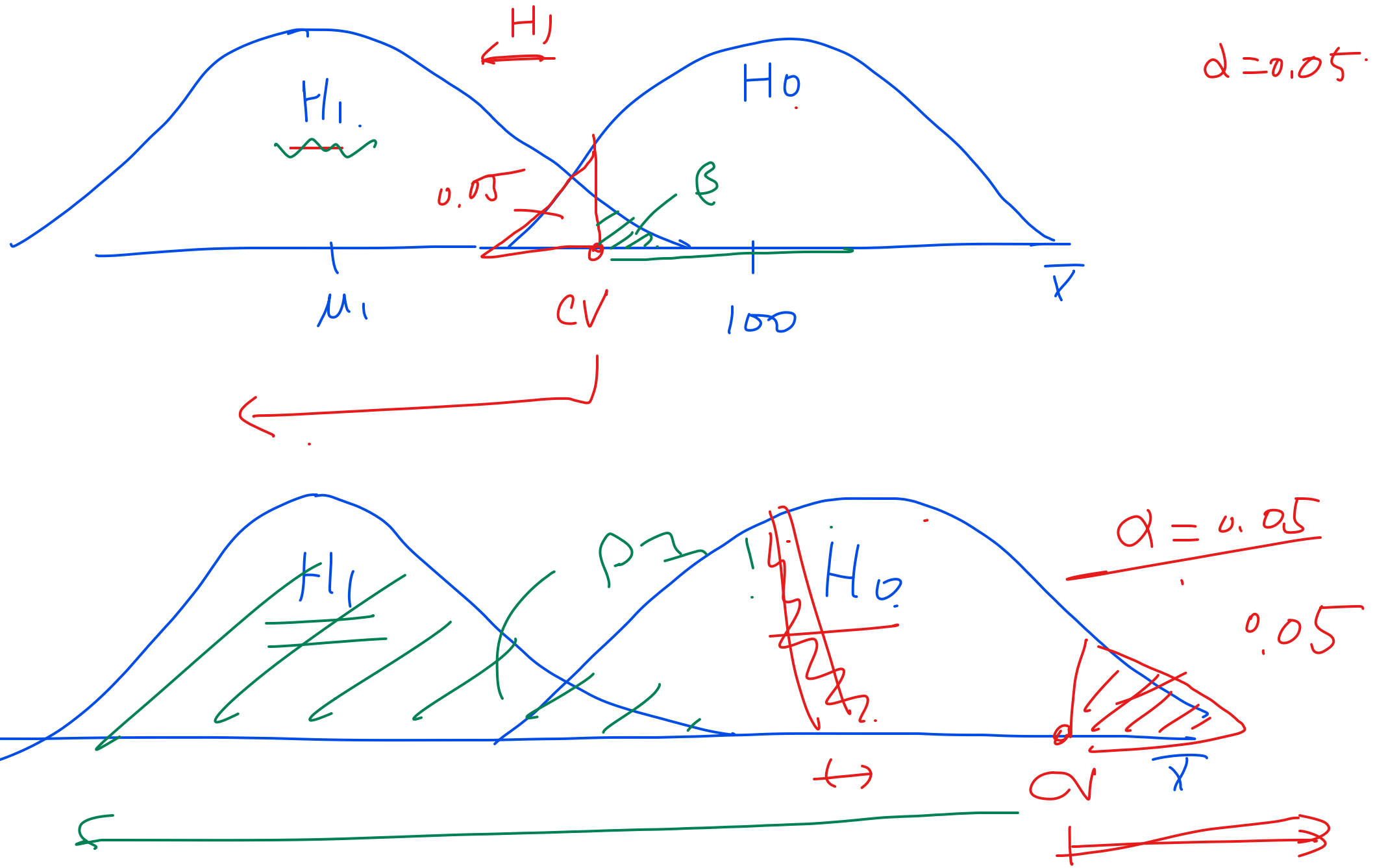
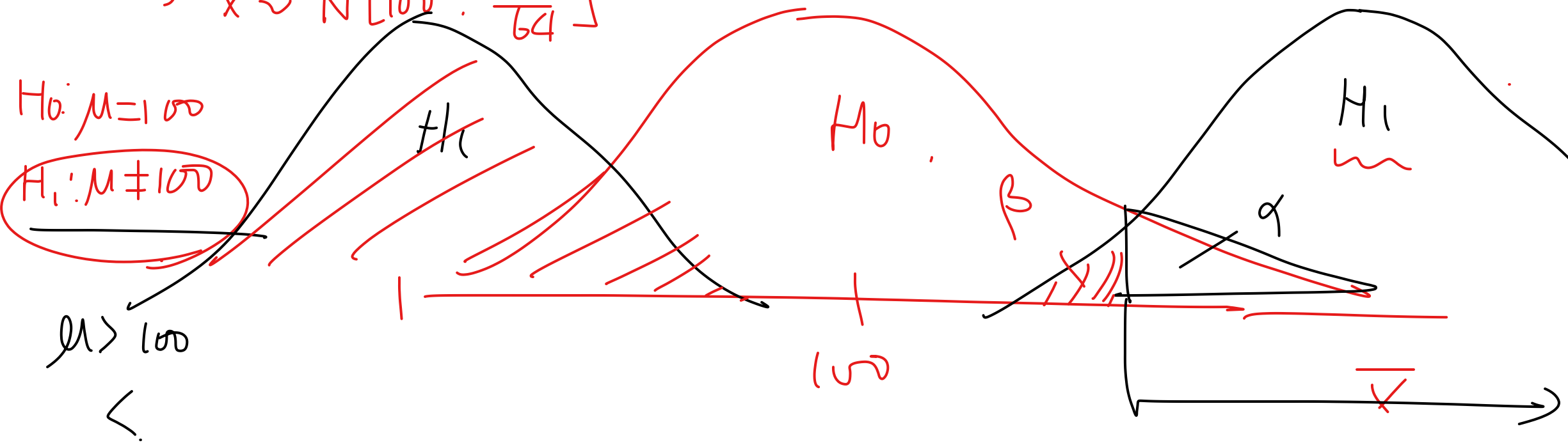

H1
H1
H0
α = 0.05
0.05
β
μ1
CV
100
X̄
H1
β
H0
α = 0.05
0.05
CV
X̄

Under H_0 $\bar{X} \sim N\left[100, \frac{25}{64}\right]$

$H_0: \mu = 100$

$H_1: \mu \neq 100$



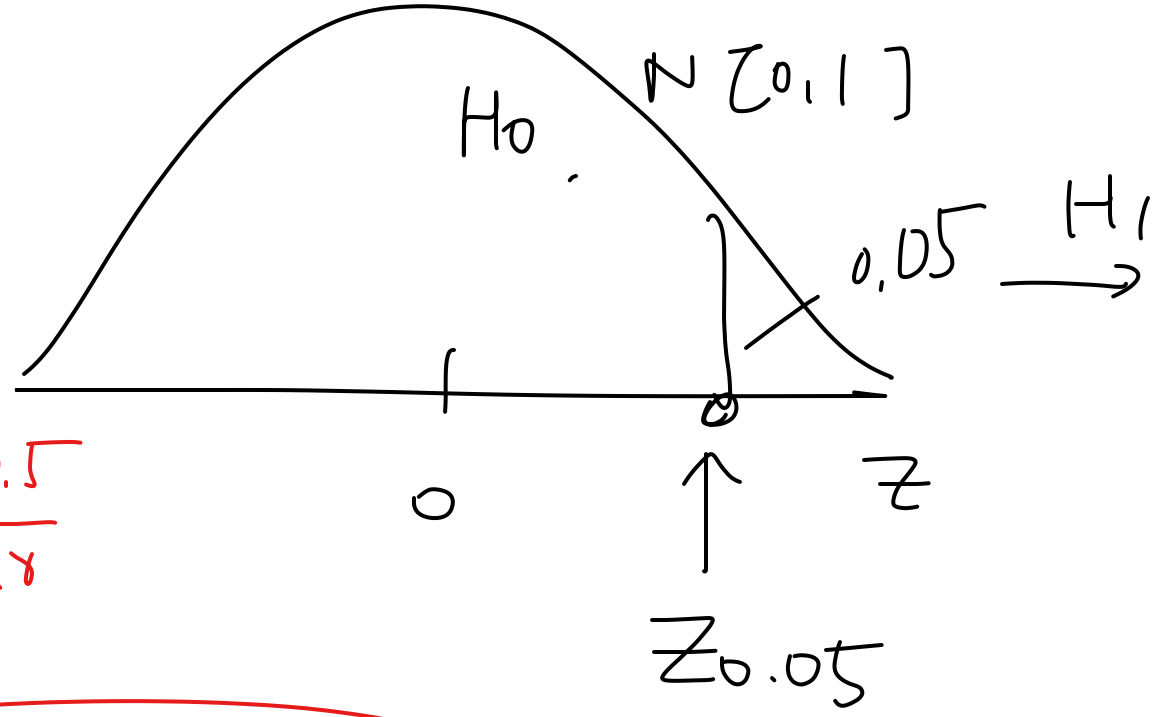
$\mu > 100$

<

Under H_0

$$Z = \frac{\bar{X} - 3}{0.5/10} \sim N[0,1]$$

test stat.



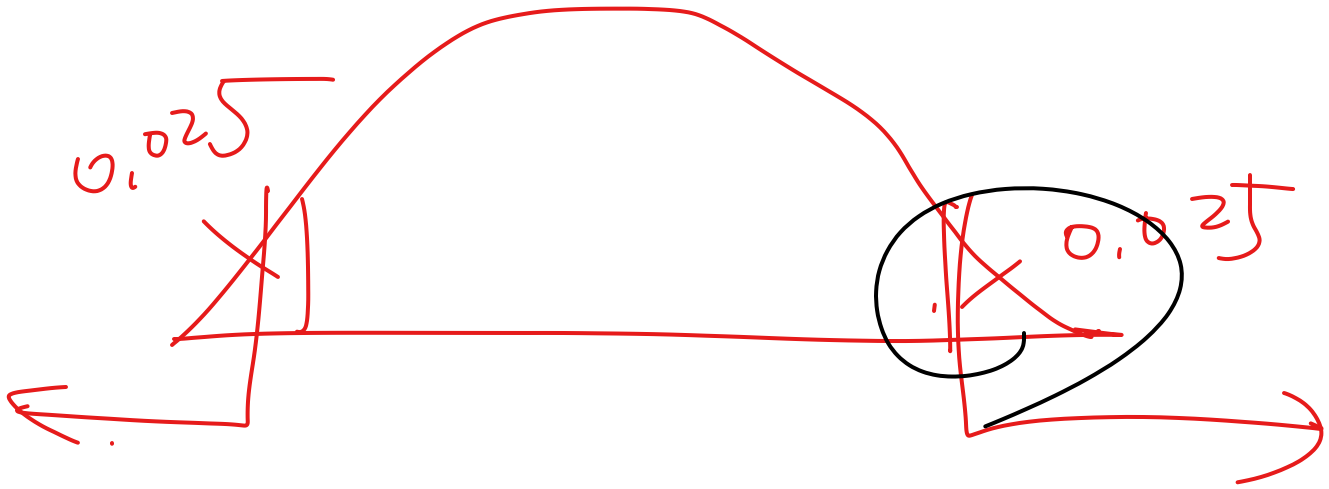
$$\Leftrightarrow \quad \bar{X} > 3 + 1.645 \frac{0.5}{10}$$

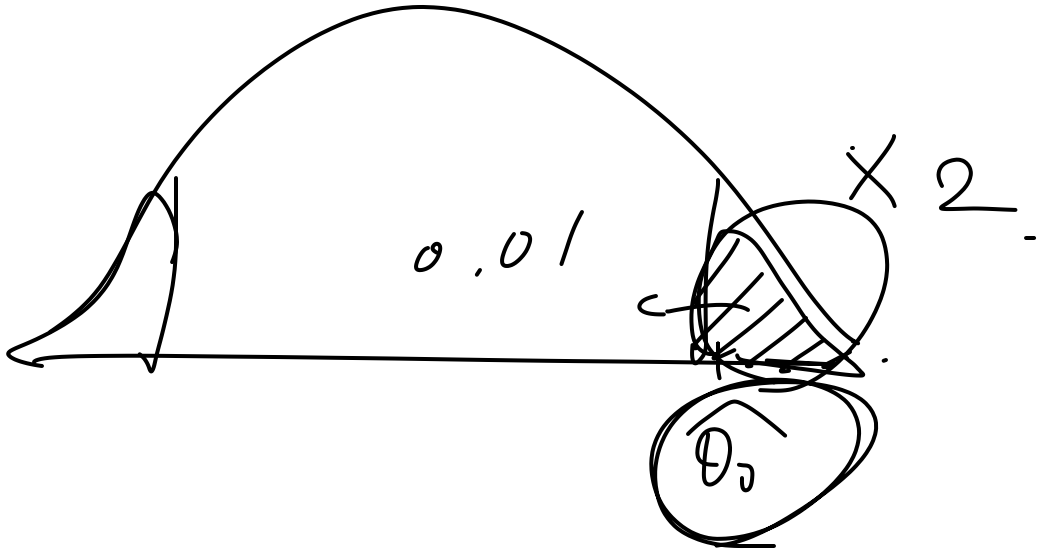
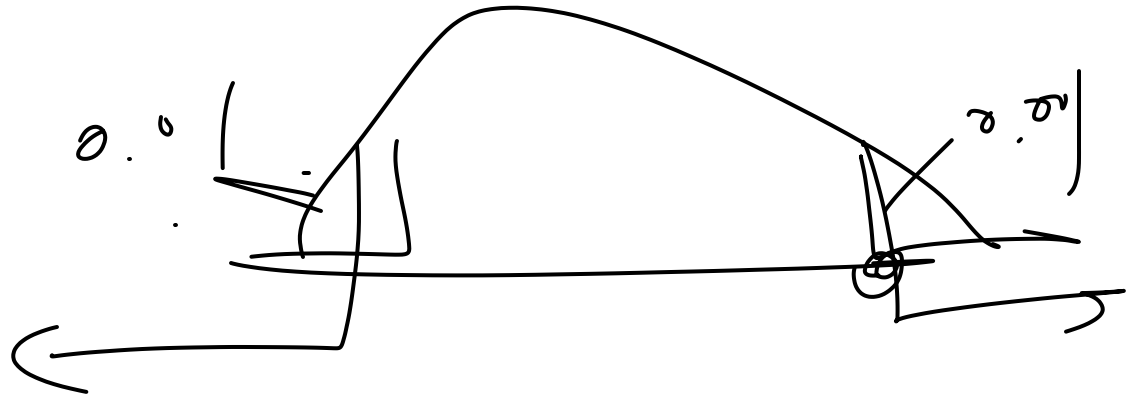
Reg H_0 if $Z > Z_{0.05}$

$$\left(\frac{\bar{X} - 3}{0.5/10} \right) > 1.645$$

$\bar{x} = 3.1$ $\quad Z_0 = \dfrac{3.1 - 3}{.5/10} = 2.$ $\quad \therefore$ Rej H_0.

$\alpha = 0.05$





p-value $= 0.02$