

Exercise SET 1 (EST.II)

Erida Gjini

ISEG, Universidade de Lisboa

erida.gjini@iseg.ulisboa.pt

28.02.2024

$X \sim \text{Binomial}(n, \theta)$

$n = 18, \theta = 0.3$

- $\text{Prob}(X = 8) =$
- $\text{Prob}(X = 16) =$
- $\text{Prob}(X \leq 10) =$

$n = 10, \theta = 0.6$

- $\text{Prob}(X = 8) =$
- $\text{Prob}(X = 0) =$
- $\text{Prob}(X > 3) =$

$X \sim \text{Poisson}(\lambda)$

$\lambda = 4.7$

- $\text{Prob}(X = 4) =$
- $\text{Prob}(X > 4) =$
- $\text{Prob}(X \leq 10) =$

$Z \sim \text{Normal}(0, 1)$

- $\text{Prob}(Z = 2.1) =$
- $\text{Prob}(Z > 1.92) =$
- $\text{Prob}(Z > b) = 0.05, b = ?$
- $\text{Prob}(Z < a) = 0.75, a = ?$

$$X_i \sim \text{Normal}(\mu, \sigma^2)$$

$$\bar{X} = \frac{\sum_{i=1}^n X_i}{n}$$

$$\underline{\mu = 2, \sigma^2 = 2}$$

- $(n = 10) \text{ Prob}(\bar{X} = 2) =$
- $(n = 100) \text{ Prob}(\bar{X} > 3) =$
- $(n = 50) \text{ Prob}(\bar{X} > b) = 0.1, b = ?$

$$Q \sim \chi_n^2$$

$$\underline{n = 11, \theta = 0.6}$$

- $Prob(Q > q_1) = 0.05, q_1 = ?$
- $Prob(Q < q_2) = 0.95, q_2 = ?$
- $Prob(Q > q_3) = 0.25, q_3 = ?$

$T \sim t(n)$ (*t* – student)

$n = 12$

- $Prob(T > t_1) = 0.025, t_1 = ?$
- $Prob(T < t_2) = 0.95, t_2 = ?$

$n = 5$

- $Prob(T < t_3) = 0.75, t_3 = ?$