ALUNA: FLÁVIA DA SILVA FORTUOSO

Exercício 1 - Semana 07

03 moedas

$P(C) = p = 1/2$ $\quad P(\bar{C}) = 1 - p$

Resultados Possíveis	Probabilidades associadas		Nº caras
Ω = { C C C	p^3	$= (1/2)^2 = 1/8$	3
C C $\bar{C}$	$pp(1-p) = p^2(1-p)$	$= (1/2)^2 . (1 - 1/2) = 1/8$	2
C $\bar{C}$ $\bar{C}$	$p.(1-p)^2$	$= 1/2 . (1 - 1/2)^2 = 1/8$	1
$\bar{C}$ $\bar{C}$ $\bar{C}$	$(1-p)^3$	$= (1 - 1/2)^3 = 1/8$	0
$\bar{C}$ $\bar{C}$ C	$(1-p)^2 p$	$= (1 - 1/2)^2 . 1/2 = 1/8$	1
$\bar{C}$ C C	$(1-p).p^2$	$= (1 - 1/2) . (1/2)^2 = 1/8$	2
$\bar{C}$ C $\bar{C}$	$(1-p)^2 . p$	$= 1/8$	1
C $\bar{C}$ C }	$p^2 (1-p)$	$= 1/8$	2

$X \in \{0, 1, 2, 3\}$

$P(X = i) > 0$

$P(X = 0) = (1-p)^3 = 1/8$

$P(X = 1) = (1-p)^2 . p + (1-p) . p + p(1-p)^2$
$= 1/8 + 1/8 + 1/8$
$= 3/8$

$P(X = 2) = (1-p) . p^2 + p^2(1-p) + p^2(1-p) = 3/8$

$P(X = 3) = p^3 = 1/8$

FDP

$$F(x) = \begin{cases} 1/8 & \text{se } x = 0 \\ 3/8 & \text{se } x = 1 \\ 3/8 & \text{se } x = 2 \\ 1/8 & \text{se } x = 3 \\ 0 & \text{caso contrário} \end{cases}$$

FDA $\quad F(x) = P(X \leq x) \quad x \in \mathbb{R}$

$$F(x) = \begin{cases} 0 & x < 0 \\ 1/8 & 0 \leq x < 1 \\ 3/8 & 1 \leq x < 2 \\ 7/8 & 2 \leq x < 3 \\ 1 & x \geq 3 \end{cases}$$