(1) $P\left(X = k \mid 0 < X \leq n\right) = \begin{cases} \dfrac{p\left(1-p\right)^{k-1}}{1-\left(1-p\right)^{n}} & ;\ k = 1, 2, \ldots, n \\ 0 & ;\ \text{caso contrário,} \end{cases}$

(2) $F_{X}\left(x \mid X > 0\right) = \begin{cases} 2F_{X}(x) - 1 & ;\ x > 0 \\ 0 & ;\ x \leq 0 \end{cases}$; $f_{X}\left(x \mid X > 0\right) = \begin{cases} \dfrac{2}{\sqrt{2\pi}}e^{-x^{2}/2} & ;\ x > 0 \\ 0 & ;\ \text{caso contrário.} \end{cases}$

(3) $F_{X}\left(x \mid a < X \leq b\right) = \begin{cases} 0 & ,\ x \leq a \\ \dfrac{F_{X}\left(x\right) - F_{X}\left(a\right)}{F_{X}\left(b\right) - F_{X}\left(a\right)} & ,\ a < x \leq b \\ 1 & ,\ x > b \end{cases}$; $f_{X}\left(x \mid a < X \leq b\right) = \begin{cases} \dfrac{f_{X}\left(x\right)}{\int_{a}^{b} f_{X}\left(y\right) dy} & ,\ a < x \leq b \\ 0 & ,\ \text{c.c.} \end{cases}$

(4) $P\left(X \leq 10 \mid X \leq 50\right) = \dfrac{1 - e^{-1/2}}{1 - e^{-25/2}} \approx 0,393$

(5) Para cada $k = 0, 1, \ldots, n$, $p_{Y/X}\left(m \mid k\right) = \begin{cases} \binom{k}{m}\left(\frac{1}{2}\right)^{k} & ,\ m = 0, 1, \ldots, k \\ 0 & ,\ \text{c.c.} \end{cases}$

(6) $p_{Y/X}\left(k \mid 1\right) \begin{cases} 1 & ,\ k = 1 \\ 0 & ,\ k \neq 1 \end{cases}$; para $i = 2, 3, \ldots, 6$ $p_{Y/X}\left(k \mid i\right) = \begin{cases} \dfrac{1}{2i-1} & ,\ k = i \\ \dfrac{2}{2i-1} & ,\ k = 1, 2, \ldots, i - 1 \end{cases}$.

(7) $n = 2, 3, \ldots$ $p_{Y/X+Y}\left(k \mid n\right) = \begin{cases} \dfrac{1}{n-1} & ,\ k = 1, 2, \ldots, n - 1 \\ 0 & ,\ \text{caso contrário} \end{cases}$.

(8) (a) para $0 < x < 1$, $f_{Y/X}\left(y \mid x\right) = \begin{cases} 2y & ,\ 0 < y < 1 \\ 0 & ,\ y \notin (0, 1) \end{cases}$; para $0 < y < 1$, $f_{X/Y}\left(x \mid y\right) = \begin{cases} 2x & ,\ 0 < x < 1 \\ 0 & ,\ x \notin (0, 1) \end{cases}$

(b) para $0 < x < 1$, $f_{Y/X}\left(y \mid x\right) = \begin{cases} \dfrac{1}{1-x} & ,\ x \leq y < 1 \\ 0 & ,\ y \notin [x, 1) \end{cases}$; para $0 < y < 1$, $f_{X/Y}\left(x \mid y\right) = \begin{cases} \dfrac{1}{y} & ,\ 0 < x \leq y \\ 0 & ,\ x \notin (0, y] \end{cases}$

(9) $P\left(0 < Y < 1/2 \mid X = 1\right) = \dfrac{5}{32}$ **(10)** $P\left(X > 1 \mid Y = y\right) = e^{-1/y}$, $y > 0$

(11)(a) para $x \geq 0$, $f_{Y/X}\left(y \mid x\right) = \begin{cases} \lambda e^{-\lambda(y-x)} & ,\ y > x \\ 0 & ,\ y \leq x \end{cases}$

(b) para $0 < x < 1$, $f_{Y/X}\left(y \mid x\right) = \begin{cases} \dfrac{(\alpha+1)(y-x)^{\alpha}}{(1-x)^{\alpha+1}} & ,\ x < y \leq 1 \\ 0 & ,\ y \notin (x, 1] \end{cases}$

(c) para $x \in R$, $f_{Y/X}\left(y \mid x\right) = \dfrac{2}{\sqrt{2\pi}}e^{-\dfrac{\left(y - \frac{x}{8}\right)^{2}}{1/2}}$, $y \in R$

(12) (b) $f_{Y}\left(y\right) = \begin{cases} \dfrac{3}{10} & ,\ 0 \leq y < 1 \\ \dfrac{1}{2} & ,\ 1 \leq y \leq 2 \\ \dfrac{1}{5} & ,\ 2 < y \leq 3 \\ 0 & ,\ \text{c.c.} \end{cases}$; **(c)** não

(13) $f_{\Pi/Y}\left(p \mid y\right) = \begin{cases} \dfrac{\Gamma\left(\alpha_{1} + \alpha_{2} + n\right) p^{\alpha_{1}+y-1}\left(1-p\right)^{\alpha_{2}+n-y-1}}{\Gamma\left(\alpha_{1} + y\right)\Gamma\left(\alpha_{2} + n - y\right)} & ,\ 0 < p < 1 \\ 0 & ,\ p \notin (0, 1) \end{cases}$: densidade $Beta\left(\alpha_{1} + y, \alpha_{2} + n - y\right)$

(14) $f_{Y}\left(y\right) = \begin{cases} \dfrac{\alpha\beta^{\alpha}}{(y+\beta)^{\alpha+1}} & ,\ y > 0 \\ 0 & ,\ y \leq 0 \end{cases}$;

para $y > 0$, $f_{\Lambda/Y}\left(\lambda \mid y\right) = \begin{cases} \dfrac{(\beta+y)^{\alpha+1}\lambda^{\alpha}e^{-(\beta+y)\lambda}}{\Gamma\left(\alpha + 1\right)} & ,\ \lambda > 0 \\ 0 & ,\ \lambda \leq 0 \end{cases}$: densidade $Gama\left(\alpha + 1, \beta + y\right)$