

R.A.: 00303794

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① a) A partir do ponto médio de cada um dos intervalos:

$$\bar{x} = \frac{3 \cdot 2800 + 9 \cdot 1400 + 15 \cdot 600 + 21 \cdot 150 + 27 \cdot 50}{5000}$$

$$\bar{x} = \frac{31500}{5000} = \boxed{6,3}$$

$$b) s^2 = (-3,9)^2 \cdot 0,56 + (2,1)^2 \cdot 0,28 + (8,1)^2 \cdot 0,12 + (14,1)^2 \cdot 0,03 + (20,1)^2 \cdot 0,01$$

$$s^2 = 8,5176 + 1,2348 + 7,8732 + 5,9643 + 4,0401$$

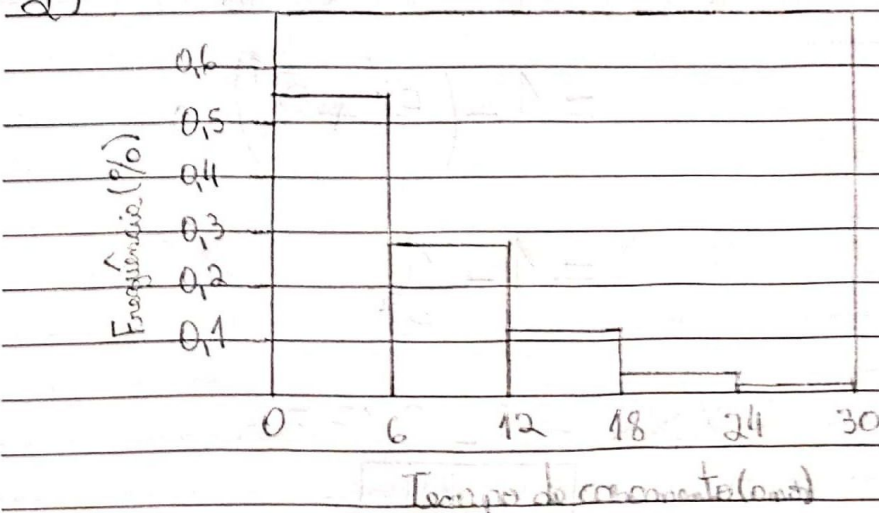
$$s^2 = \boxed{27,63}$$

$$c) s = \sqrt{27,63}$$

$$s \approx \boxed{5,26}$$

Amor de casamento	Nº de divórcios	Frequência (%)
0 — 6	2800	0,56
6 — 12	1400	0,28
12 — 18	600	0,12
18 — 24	150	0,03
24 — 30	50	0,01

d)



②

x (lucros)	$p(x)$	$xP(x)$	Média = $\sum x P(x)$
0	0,1	0	Média = 1,6 //
1	0,4	0,4	
2	0,3	0,6	
3	0,2	0,6	

Logo, o valor mais próximo da média de lucros é 2, que por acaso é o número de flores que o florista vende com esse lucro.

R.: 2 flores

③ a) $\lambda = 1$ $P(X=0) = \frac{1^0 \cdot e^{-1}}{0!} \rightarrow \frac{1}{e} \approx 0,3678 //$

nenhum corte $\rightarrow x=0$

b) até 2 cortes $P(X \leq 2) = P(X=0) + P(X=1) + P(X=2)$

$\lambda = 1$

$$P(X \leq 2) = e^{-1} + \frac{1^1 \cdot e^{-1}}{1!} + \frac{1^2 \cdot e^{-1}}{2!}$$

R.: $\approx 0,9197 //$

$$= 2e^{-1} + \frac{e^{-1}}{2} \rightarrow \frac{4e^{-1} + e^{-1}}{2} \rightarrow \frac{5}{2e} //$$

c) pelo menos 2 cortes $P(X \geq 2) = 1 - P(X < 2)$

$\lambda = 1$

$$= 1 - (e^{-1} + e^{-1})$$

$$= 1 - \frac{1}{e^2}$$

$$P(X \geq 2) = 1 - 0,1353$$

$\approx 0,8646 //$

④ $\lambda = 2$

a) $P(X > 3) = 1 - (P(X=3) + P(X=2) + P(X=1) + P(X=0))$

$$= 1 - \left(\frac{2^3 \cdot e^{-2}}{3 \cdot 2} + \frac{2^2 \cdot e^{-2}}{2} + \frac{2^1 \cdot e^{-2}}{1} + \frac{2^0 \cdot e^{-2}}{1} \right)$$

$$= 1 - \left[e^{-2} \cdot \left(\frac{4 + 2 + 2 + 1}{3} \right) \right]$$

$$= 1 - \frac{19e^{-2}}{3} \approx \boxed{0,1429}$$

b) O número médio é igual ao λ , portanto é 2.

⑤ A = Aumento
N = Não II

a) AAAAAAAAAANN

$$\frac{10!}{7!3!} \cdot 0,8^7 \cdot 0,2^3 = \frac{10 \cdot 9 \cdot 8 \cdot 7!}{7! \cdot 3 \cdot 2} \cdot 0,2097 \cdot 0,08$$

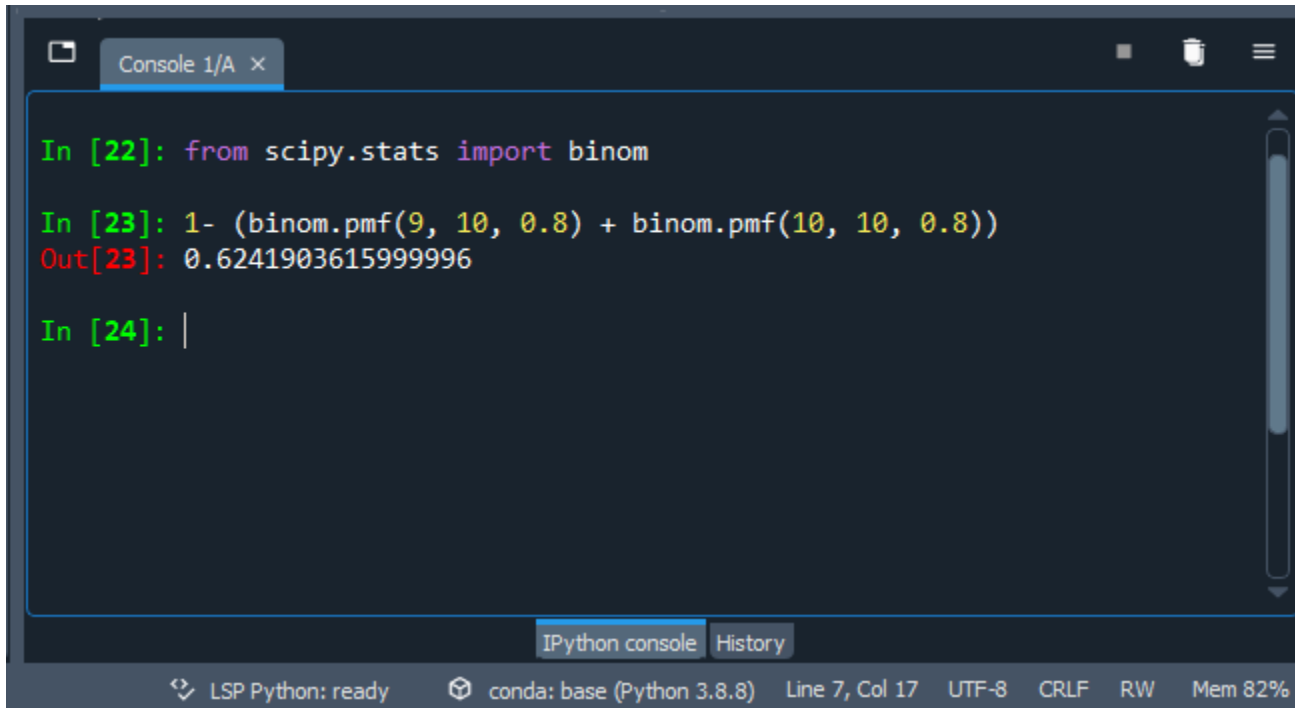
$$\approx \boxed{0,2013}$$

b) $P(X \leq 8) = 1 - [P(X=9) + P(X=10)] \Rightarrow \text{Python}$

c) $P(X \leq 7) = 1 - [P(X=8) + P(X=9) + P(X=10)] \Rightarrow \text{Python}$

QUESTÃO 5

LETRA B



A screenshot of a Jupyter console window titled 'Console 1/A'. The console shows three input/output pairs. The first input is 'from scipy.stats import binom'. The second input is '1- (binom.pmf(9, 10, 0.8) + binom.pmf(10, 10, 0.8))', and the output is '0.6241903615999996'. The third input is an empty line. The status bar at the bottom indicates 'LSP Python: ready', 'conda: base (Python 3.8.8)', 'Line 7, Col 17', 'UTF-8', 'CRLF', 'RW', and 'Mem 82%'.

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In [22]: from scipy.stats import binom

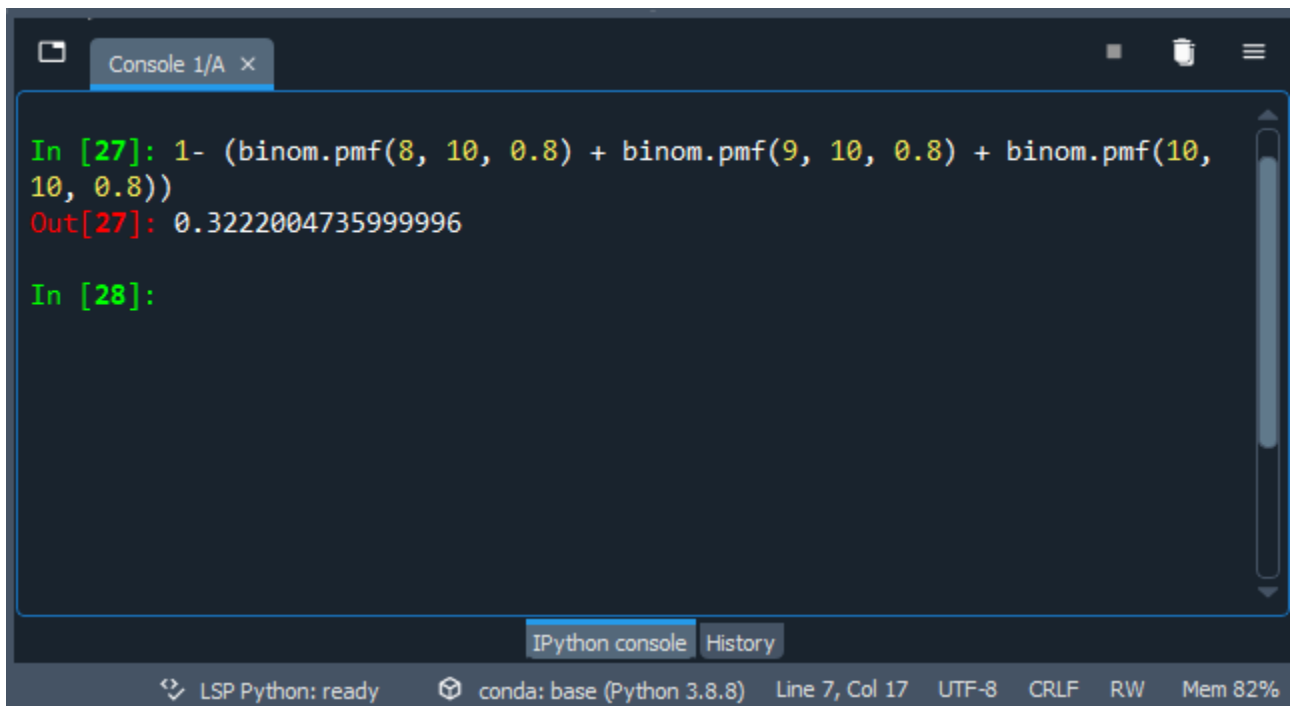
In [23]: 1- (binom.pmf(9, 10, 0.8) + binom.pmf(10, 10, 0.8))
Out[23]: 0.6241903615999996

In [24]: |
```

IPython console History

LSP Python: ready conda: base (Python 3.8.8) Line 7, Col 17 UTF-8 CRLF RW Mem 82%

LETRA C



A screenshot of a Jupyter console window titled 'Console 1/A'. The console shows two input/output pairs. The first input is '1- (binom.pmf(8, 10, 0.8) + binom.pmf(9, 10, 0.8) + binom.pmf(10, 10, 0.8))', and the output is '0.32220047359999996'. The second input is an empty line. The status bar at the bottom indicates 'LSP Python: ready', 'conda: base (Python 3.8.8)', 'Line 7, Col 17', 'UTF-8', 'CRLF', 'RW', and 'Mem 82%'.

```
In [27]: 1- (binom.pmf(8, 10, 0.8) + binom.pmf(9, 10, 0.8) + binom.pmf(10,
10, 0.8))
Out[27]: 0.32220047359999996

In [28]:
```

IPython console History

LSP Python: ready conda: base (Python 3.8.8) Line 7, Col 17 UTF-8 CRLF RW Mem 82%