

TAREFA: PROBABILIDADE II

1)

5 lâmpadas

↳ 3 funcionam → S

↳ 2 não funcionam → N

$$\frac{3 \cdot 2 \cdot 2 \cdot 3!}{5 \cdot 4 \cdot 3 \cdot 2!} = \frac{72 \cdot 24}{120 \cdot 24} = 3$$

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R: B

2) $h(s) = 36$

$$A = \{(1, 2), (2, 1)\} \rightarrow h(a) = 2$$

$$B = \{(1, 5), (5, 1), (2, 4), (4, 2), (3, 3)\} \rightarrow h(b) = 5$$

$$P(A \cup B) = \frac{2}{36} + \frac{5}{36} = \frac{7}{36}$$

R: C

$$3) A = \text{população} \geq 110 \text{ mi}$$

$$B = \text{população} \leq 110 \text{ mi}$$

$$A \cap B = 110 \text{ mi} \rightarrow P(A \cup B) = 1 = 100\%$$

$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

$$1 = 0,95 + 0,08 - x$$

$$x = 0,95 + 0,08 - 1$$

$$x = 1,03 - 1$$

$$x = 0,03 \rightarrow P(A \cap B) = 0,03 \rightarrow 3\%$$

$$4) S = \{101, 102, 103, 104, \dots, 1000\}$$

$$h(s) = 900$$

A cada 10 \rightarrow 1 com final 0 $\rightarrow 900/10 = 90$

$$\rightarrow 90 + 1$$

final 0: 91 num

5/ zero: 809 num

pares terminados em 5 $\rightarrow 9 \cdot 10 \cdot 5 = 450 / 90 / \text{p/ cada}$

$$\rightarrow \text{final} = 0 \text{ e final} = 0 \quad \frac{91}{900} \cdot \frac{91}{900} = 0,01$$

$$\rightarrow \text{final} \neq 0 \text{ e final} = 0 \quad \frac{809}{900} \cdot \frac{91}{900} = 0,09 = 9\%$$

$$\rightarrow \text{final} = 0 \text{ e final} \neq 0 \quad \frac{91}{900} \cdot \frac{809}{900} = 0,09 = 9\%$$

$$\rightarrow \text{PAV e final} = 5 \quad \frac{90}{900} \cdot \frac{90}{900} \cdot 4 = 0,04 = 4\%$$

$$\rightarrow \text{final} 5 \text{ e PAV} \rightarrow \frac{10}{100} \cdot \frac{90}{900} \cdot 4 = 0,04 = 4\%$$

$$\text{total: } 27\%$$

$$100 + 27 = 127\%$$

5)

10 livros

↳ 5 economia

$$h(5) = P_{10} = 10!$$

$$\underbrace{7 \ 3 \ 2 \ 1}$$

$$h(7) P_4 \cdot P_7 = 4! \cdot 7!$$

$$\frac{4! \cdot 7!}{10!} = \frac{4 \cdot 3 \cdot 2 \cdot 1 \cdot \cancel{7!}}{10 \cdot 9 \cdot 8 \cdot \cancel{7!}} = \frac{24^{\cancel{24}}}{720^{\cancel{24}}} = 1/30$$

(R: C)

6)

$$\rightarrow A, A, A = 1/2 \cdot 1/2 \cdot 1/2 = 1/8$$

$$\rightarrow A, A, B = 1/2 \cdot 1/2 \cdot 1/2 \cdot 3 = 3/8$$

$$\rightarrow A, B, B = 1/2 \cdot 1/2 \cdot 1/2 \cdot 3 = 3/8$$

$$\rightarrow B, B, B = 1/2 \cdot 1/2 \cdot 1/2 = 1/8$$

$$P = (1/8 \cdot 1/8) + (3/8 \cdot 3/8) + 3/8 + 3/8 + 1/8 + 1/8$$

$$P = 1/64 + 9/64 + 9/64 + 1/64 = \frac{20 \cdot 4}{64 \cdot 4} = 5/16$$

R: D

7) 10 dias

↳ 7 alta
↳ 3 baixa

$$C_{10,2} = \frac{10!}{2!(10-2)!} = \frac{10 \cdot 9 \cdot 8!}{2 \cdot 1 \cdot 8!} \rightarrow 90/2 = 45$$

$$\begin{array}{c|c} 5 & 6, 7, 11, 12, 14 \\ 10 & = 11, 12, 14 \\ 13 & 14 \end{array} \left. \vphantom{\begin{array}{c|c} 5 & 6, 7, 11, 12, 14 \\ 10 & = 11, 12, 14 \\ 13 & 14 \end{array}} \right\} \text{total vendas} = 9$$

↑
compras

↑
Vendas

$$P = \frac{9!}{45 \cdot 9} = 1/5$$

R: C

$$8) S = \{1, 2, 3, 1, 2, 3, 1, 2, 3\} \rightarrow 9 \quad P = 2/9$$

$$E = (2, 3) \text{ e } (3, 2) \rightarrow 2$$

R: D

9)

$$C_{6,3} = \frac{6!}{3!3!} = \frac{6 \cdot 5 \cdot 4 \cdot \cancel{3!}}{3 \cdot 2 \cdot 1 \cdot \cancel{3!}} = 120/6 = 20 \text{ p.}$$

$$6 \cdot 2 = 12 \text{ } \square \text{ retangulos} \rightarrow P = \frac{12^4}{20^4} \rightarrow 3/5$$

R: e