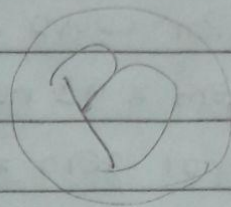


Tarefa Básica 17

Probabilidade II

1. 3 boas = B ; 2 defeituosas = D

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

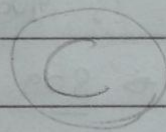


2. $n(S) = \underline{36}$

$$A = \{(1, 2); (2, 1)\} \Rightarrow n(A) = 2$$

$$B = \{(1, 5); (5, 1); (2, 4); (4, 2); (3, 3)\} \Rightarrow n(B) = 5$$

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



3. $A = \text{População} \geq 110 \text{ milhões}$

$B = \text{População} \leq 110 \text{ milhões}$

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

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

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

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

$$x = 1,03 - 1$$

$$x = \underline{0,03}$$

$$P(A \cap B) = 0,03 = \boxed{3\%}$$

$$4. S = \{101, 102, \dots, 1000\}$$

$$n(S) = 900$$

A cada 10 números, 1 tem o final zero $\Rightarrow 900/10 = 90$
 $90 + 1$ (Por causa do "1000")

\rightarrow final zero = 91 números

\rightarrow Sem final zero = 809 números

números pares e terminados em 5

$\rightarrow 9 \cdot 10 \cdot 5 = 450$ (90 p/ cada caso)

Situações:

$$* \text{ final}=0 \text{ e final}=0 \rightarrow \frac{91}{900} \cdot \frac{91}{900} = 0,01 = 1\%$$

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

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

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

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

Logo...

$$1\% + 9\% + 9\% + 4\% + 4\% = 27\%$$

$$100\% - 27\% = \boxed{73\%}$$

5. 10 livros ; 7 de Economia

$$n(S) = P_{10} = 10!$$

$$\frac{7}{1} \cdot \frac{3}{1} \cdot \frac{2}{1} \cdot \frac{1}{1}$$

$$n(7 \text{ juntos}) P_4 \cdot P_7 = 4! \cdot 7!$$

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

6. Cores = X e Y

$$* A, A, A = \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} = \frac{1}{8}$$

$$* A, A, B = \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} \cdot 3 = \frac{3}{8}$$

$$* A, B, B = \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} \cdot 3 = \frac{3}{8}$$

$$* B, B, B = \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} = \frac{1}{8}$$

$$P = \frac{1}{8} + \frac{1}{8} + \frac{3}{8} + \frac{3}{8} + \frac{3}{8} + \frac{3}{8} + \frac{1}{8} + \frac{1}{8}$$

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

7. 10 dias: 7 em alta e 3 em baixa

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

Compra no dia:	Venda no dia:	
5	6, 7, 11, 12, 14	$\rightarrow 5$
10	11, 12, 14	$\rightarrow 3$
13	14	$\rightarrow 1$
		$5 + 3 + 1 = \underline{\underline{9}}$

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

(C)

8. $S = \{1, 2, 3, 1, 2, 3, 1, 2, 3\} \Rightarrow n(S) = 9$

$E = (2, 3), (3, 2) \Rightarrow n(E) = 2$

$$P = \boxed{\frac{2}{9}}$$

(D)

9. Hexágono: 6 vértices, escolha 3

$$C_{6,3} = \frac{6!}{3!3!} = \frac{6 \cdot 5 \cdot 4 \cdot 3!}{3 \cdot 2 \cdot 1 \cdot 3!} = \frac{120}{6} = \underline{\underline{20 \text{ possibilidades}}}$$

1 vértice forma 2 Δ retângulos

$$6 \cdot 2 = \underline{\underline{12 \Delta \text{ retângulos}}}$$

$$P = \frac{12!}{20!} = \boxed{\frac{3}{5}}$$

(C)