

PROPOSTA DE RESOLUÇÃO

TESTE 2

Grupo I - 1 C ; 2 B ; 3 B ; 4A ; 5 D

Grupo II

6. a) $p = \frac{1}{12}$ b) $p = \frac{8}{8 \times 7} = \frac{1}{7}$ c) $p = \frac{2}{3 \times 2} = \frac{1}{3}$

d) 1 (quaisquer 3 pontos definem sempre um triângulo)

7. $p(A \cup B) = p(A) + p(B) - p(A \cap B) \Leftrightarrow$

$$\frac{3p(B)}{2} = \frac{p(B)}{2} + p(B) - p(A \cap B) \Leftrightarrow$$

$$p(A \cap B) = \frac{p(B)}{2} + p(B) - \frac{3p(B)}{2} \Leftrightarrow \text{logo } A \text{ e } B \text{ são incompatíveis.}$$

$$p(A \cap B) = 0$$

8. $p(B | \bar{A}) = \frac{p(B \cap \bar{A})}{p(\bar{A})} = \frac{0,2}{0,3}$ porque

$$p(A \cup B) = p(A) + p(B) - p(A \cap B) \Leftrightarrow p(A \cap B) = 0,7 + 0,5 - 0,9 = 0,3 \text{ então } p(\bar{A} \cap B) = 0,2$$

9.

a) $p(M \cap C) = 0,4 \times 0,2$

b) $p(H | \bar{C}) = \frac{p(H \cap \bar{C})}{p(\bar{C})} = \frac{0,42}{0,74} = \frac{21}{37}$

$$\text{porque } p(\bar{C}) = 0,6 \times 0,7 + 0,4 \times 0,8 = 0,74$$

10. a) $p(A \cap B) \geq 0$ logo $p(A) + p(B) \geq p(A \cup B)$

b)

$$\begin{aligned} 1 + \frac{p(\bar{A} \cap \bar{B}) - p(\bar{A})}{p(B)} &= 1 + \frac{p(\overline{A \cup B}) - (1 - p(A))}{p(B)} = \\ &= 1 + \frac{1 - p(A \cup B) - 1 + p(A)}{p(B)} = 1 + \frac{-p(A) - p(B) + p(A \cap B) + p(A)}{p(B)} = \\ &= 1 + \left(\frac{-p(B)}{p(B)} \right) + \frac{p(A \cap B)}{p(B)} = 1 - 1 + \frac{p(A \cap B)}{p(B)} = p(A | B) \end{aligned}$$