01→

5 BRANCAS 3 BOLAS

4 VERMELHAS

3 AZUIS

a) $C_{12,3} = \dfrac{12!}{3!(12-3)!} = \dfrac{12!}{3!\,9!} = \dfrac{\cancel{12}\cdot 11\cdot 10\cdot \cancel{9!}}{\cancel{6}\cdot \cancel{9!}} = 220$

$C_{8,3} = \dfrac{8!}{3!(8-3)!} = \dfrac{8!}{3!\,5!} = \dfrac{8\cdot 7\cdot \cancel{6}\cdot \cancel{5!}}{\cancel{6}\cdot \cancel{5!}} = 56$

$p(A) = \dfrac{56}{220} = \dfrac{28}{110} = \dfrac{14}{55}$ //

b)

$C_{4,1} = \dfrac{4!}{1!(4-1)!} = \dfrac{4\cdot \cancel{3!}}{1!\,\cancel{3!}} = 4$ //

$C_{8,2} = \dfrac{8!}{2!(8-2)!} = \dfrac{8\cdot 7\cdot \cancel{6!}}{2\cdot \cancel{6!}} = 28$ //

$p(A) = \dfrac{4\cdot 28}{220} = \dfrac{112}{220} = \dfrac{56}{110} = \dfrac{28}{55}$ //

c)

$C_{5,3} = \dfrac{5!}{3!(5-3)!} = \dfrac{5!}{3!\,2!} = \dfrac{5\cdot 4\cdot \cancel{3!}}{\cancel{3!}\,2} = 10$ //

$C_{4,3} = \dfrac{4!}{3!(4-3)!} = \dfrac{4\cdot \cancel{3!}}{\cancel{3!}\,1!} = 4$ //

$C_{3,3} = 1$ //

$p(A) = \dfrac{10}{220}$

$p(B) = \dfrac{4}{220}$

$p(C) = \dfrac{1}{220}$

$p(A\cup B\cup C) = \dfrac{10}{220} + \dfrac{4}{220} + \dfrac{1}{220}$

$p(A\cup B\cup C) = \dfrac{15}{220} = \dfrac{3}{44}$ //

Q2 →

$P(A) = \frac{2}{3}$ $\quad P(\bar{A}) = \frac{1}{3}$

$P(B) = \frac{4}{5}$ $\quad P(\bar{B}) = \frac{1}{5}$

$P(C) = \frac{7}{10}$ $\quad P(\bar{C}) = \frac{3}{10}$

$P(\bar{A} \cap \bar{B} \cap \bar{C}) = \frac{1}{3} \cdot \frac{1}{5} \cdot \frac{3}{10} = \frac{3}{150} = \frac{1}{50}$ /

$P = 1 - P(\bar{A} \cap \bar{B} \cap \bar{C}) = 1 - \frac{1}{50} = \frac{49}{50}$ //

03 →

A 60

B 40

$A \cap B$ 20

a)

$\frac{60}{120} = \frac{1}{2}$

$\frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} = \frac{1}{8}$ //

b) $\frac{4\cancel{0}}{12\cancel{0}} = \frac{1}{3}$

A B A

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

$\frac{1}{12}$

B A B

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

$\frac{1}{18}$

$\frac{1}{12} + \frac{1}{18} = \frac{3+2}{36} = \frac{5}{36}$ //