Seminarul 2

5) _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

$\{0, 1, \dots, 9\}$

doar 100 milioane sunt valide

$100\,000\,000 = 10^8$

$p = \frac{10^8}{10^{10}} = 10^{-8}$

6) $\{\underbrace{a, b, \dots, z}_{26}, \underbrace{A, B, \dots, Z}_{26}, \underbrace{0, 1, \dots, 9}_{10}\}$

$p = \frac{m}{n}$ - fav / posibile

$n = (10+26+26)^{11} = 62^{11}$

$m = 1$

$\Rightarrow p = \frac{1}{62^{11}}$

7) $\{1, 2, \dots, 15\}$

$n = C_{15}^{5} = \frac{15 \cdot 14 \cdot 13 \cdot 12 \cdot 11}{1 \cdot 2 \cdot 3 \cdot 4 \cdot 5} = 21 \cdot 13 \cdot 11 = 231 \cdot 13 = 3003$

m :

1, 2, 3, 4, 5	
2 3 4 5 6	
3 - - - - 7	
4 . - - - 8	
5	9
6	10
7	11
⋮	
15	4

$\Rightarrow$ 15 grupuri de locuri consecutive

$p = \frac{15}{3003} = \frac{5}{1001}$

8) $\underline{\_\ \_\ \_\ \_\ \_}$ $\{0, \dots, 9\}$

a) $p = \frac{A_{10}^5}{10^5} = \frac{10 \cdot 9 \cdot 8 \cdot 7 \cdot 6}{10^5} = \frac{3024}{10^4}$

b) $p = \frac{10}{10^5} = \frac{1}{10^4}$

c) $\overbrace{\_\ \_\ \_\ \_\ \_}^{A_9^3}$

$\underbrace{\downarrow 10 \quad \downarrow 1}_{10 \cdot C_5^2} \quad \downarrow 9 \quad \downarrow 8 \quad \downarrow 7$

$p = \frac{10 \cdot C_5^2 \cdot 9 \cdot 8 \cdot 7}{10^5} = \frac{C_5^2 \cdot 9 \cdot 8 \cdot 7}{10^4} = \frac{9 \cdot 8 \cdot 7}{10^3}$