Решение:

Бидејќи секој шахист одиграл со секого по една партија, тука станува збор за комбинации. Притоа непознат е вкупниот број на учесници n, но познато е дека $C_n^2 = 45$

$$\frac{n!}{(n-2)!\cdot 2!} = \frac{n(n-1)}{2\cdot 1} = 45$$
$$n(n-1) = 90$$
$$n^2 - n - 90 = 0$$
$$n_{1,2} = \frac{1 \pm \sqrt{1+360}}{2} = \frac{1 \pm 19}{2}$$
го отфрламе негативното решение
$$n = 10$$

На турнирот имало 10 учесници.

Set of elementary events. Random events.

Problem 1. An experiment consists of throwing a dice. Describe the set of elementary events and the following random events:

A: an even number is observed,

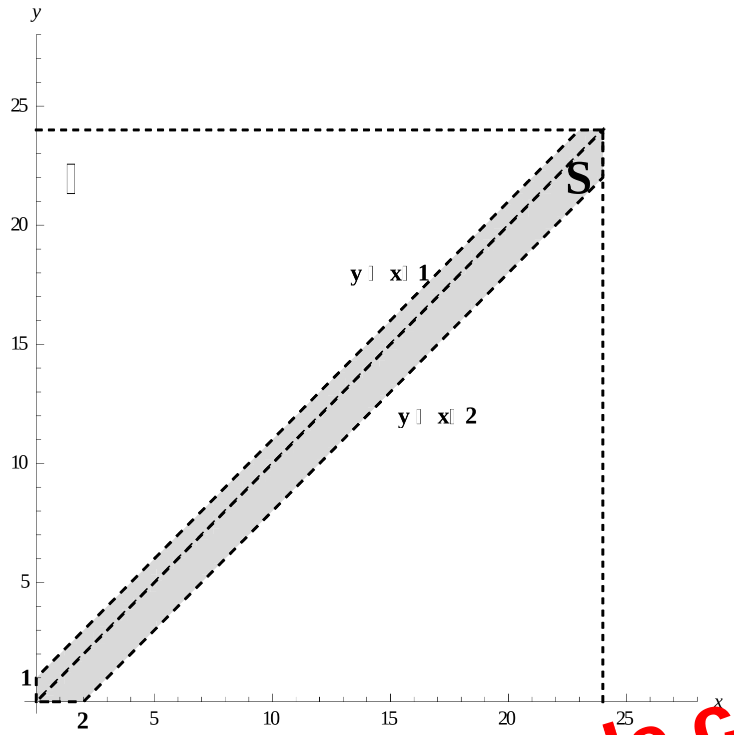
B: a number divisible by 3 is observed,

C: a number smaller than 5 is observed.

Solution: Let the elementary event E_i denote that we observe the number I when throwing the dice *i*=1,2,...6. Then, the set of elementary events Ω is given by Ω={ E_1, E_2,E_3,E_4,E_5,E_6}, and

A={E_2,E_4,E_6}, B={E_3,E_6}, C={E_1, E_2,E_3,E_4}

Problem 2. One box contains 4 pieces of paper, numerated with the numbers 1,2,3 and 4. At random we take a paper from the box without returning, until an odd number is drawn. Find the set of elementary events and the following events:



$$m(\Omega) = 24 \cdot 24 = 576$$

$$m(S) = 24 \cdot 24 - \left(\frac{23 \cdot 23}{2} + \frac{22 \cdot 22}{2} \right) = 69.5$$

The probability that the event S will happen is:

$$P(S) = \frac{m(S)}{m(\Omega)} = 0.12 .$$

Problem 2. Find the probability that the sum of two randomly chosen positive numbers smaller than 1 will be smaller than 1, and that their product will be less than 2/9.

Solution:

$$\Omega = \{(x, y) \mid 0 \le x, y \le 1\}, \quad m(\Omega) = 1$$

S={(x,y)| 0<x,y< 1, x+y<1, xy <2/9 }