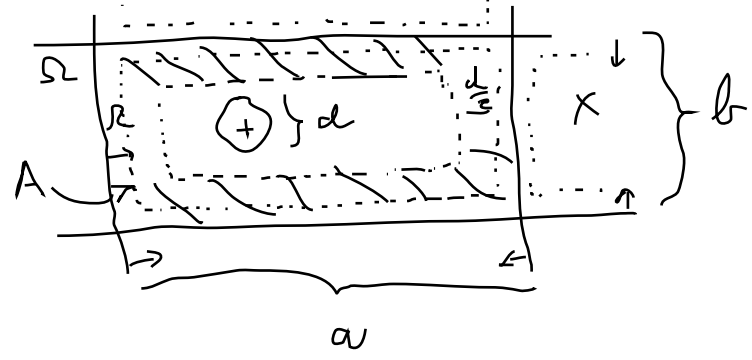
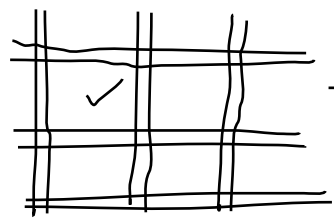


5.1:



$|\Omega| = a \cdot b$

$|A| = a \cdot b - (a - 2r - d)(b - 2r - d)$

a, b, d, r

... pokud

[výsledek experimentu ... střed kulčky / kroužku]

$a \geq 2r$
 $b \geq 2r$

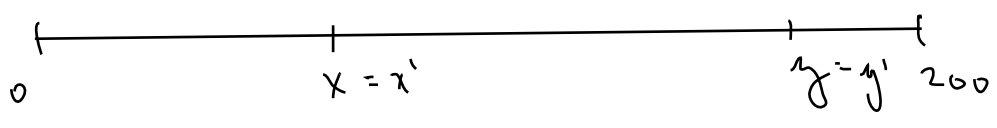
$|A| = a \cdot b$... jinak ... $A = \Omega$

$P(\text{cirkule}) = \frac{|A|}{|\Omega|} = 1 - \frac{(a - 2r - d)(b - 2r - d)}{a \cdot b}$

... min

= 1 ... jinak

5.2:

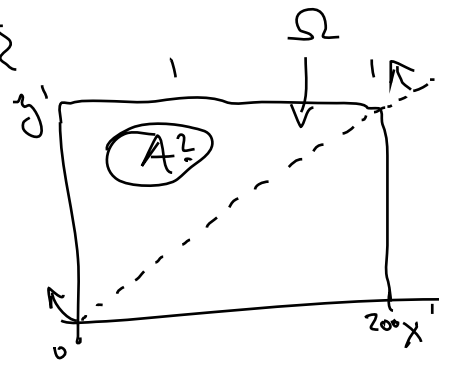


$x, y \in (0, 200)$

$x \neq y$

I) $y' = \max(y, x)$, $x' = \min(y, x) \Rightarrow y' \geq x'$
 $200 - y'$, $y' - x'$, x'
 -- délky 3 částí

$f(x', y') = \min \{ \dots \}$
 ↳ [graf]



≤ 10

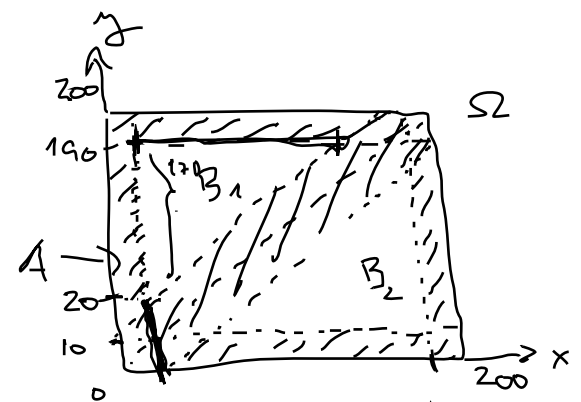
$A = \{ (x', y') \in (0, 200) \}$

$|\Omega| = 200^2 / 2$
 $|A| = ?$
 $f(x', y') \leq$

II) x ... poloha řezu č.1
 y ... poloha řezu č.2

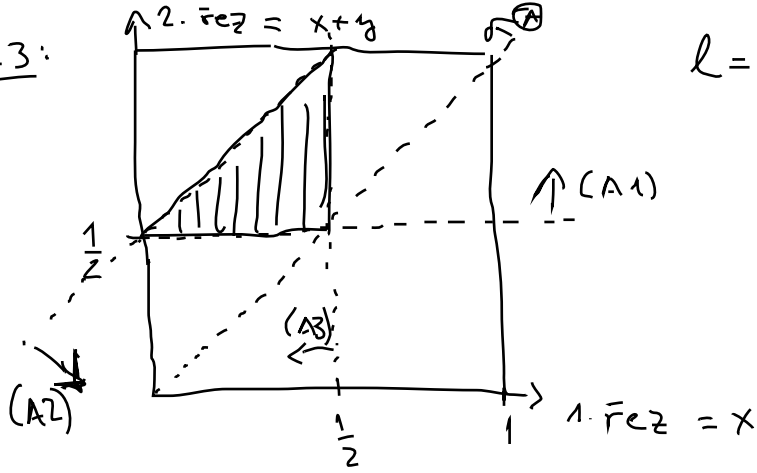
$|\Omega| = 200^2$

$|A| = 200^2 - |B_1| - |B_2| =$
 $= 200^2 - 170^2 / 2 - 170^2 / 2$



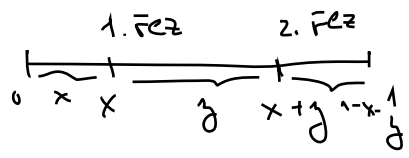
$P(A) = 1 - \frac{10}{289} / 400 = \frac{111}{400}$

5.3:



$l=1$

(A)

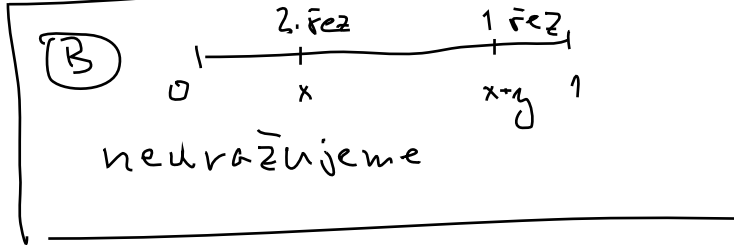


$x > 0$
 $y > 0$
 $1-x-y > 0$

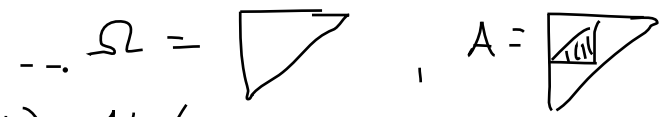
Podmínky na Δ :

- $x+y > 1-x-y$
- $x+1-x-y > y$
- $y+1-x-y > x$

- \Rightarrow
- $x+y > \frac{1}{2}$ (A1)
 - $y < \frac{1}{2}$ (A2)
 - $x < \frac{1}{2}$ (A3)



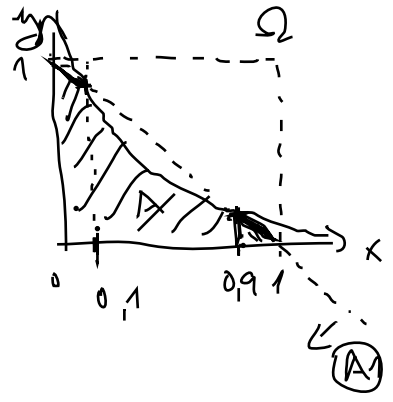
Předp.: "První řez je více vlevo"



$|\Omega| = 1/2, |A| = 1/8 \Rightarrow P(A) = 1/8 / 1/2 = 1/4$

5.4: $x, y \in (0,1)$... $A = \{(x,y) \in (0,1)^2 : x+y < 1, x \cdot y < 0,09\}$

$P(A) = P(x+y < 1, x \cdot y < 0,09)$



(A1)

$x+y=1 \dots y=1-x$
 $y < 1-x$

(A2)

$x \cdot y = 0,09 \dots y = \frac{0,09}{x}$

Průsečíky?

$x+y=1$
 $x \cdot y = 0,09$

$y = 1-x$
 $x(1-x) = 0,09$
 $x^2 - x + 0,09 = 0$

$|\Omega| = 1$

$|A| = 1 \cdot 0,1 + \int_{0,1}^{0,9} \frac{0,09}{x} dx =$

$= 0,1 + 0,09 [\log x]_{x=0,1}^{0,9} =$

$= 0,1 + 0,09 (\log 0,9 - \log 0,1) = 0,1 + 0,09 \cdot \log 9 = 0,298$

$x_{1,2} = \frac{1 \pm 0,8}{2} = \begin{cases} 0,9 \\ 0,1 \end{cases}$
 $y_{1,2} = \begin{cases} 0,1 \\ 0,9 \end{cases}$

