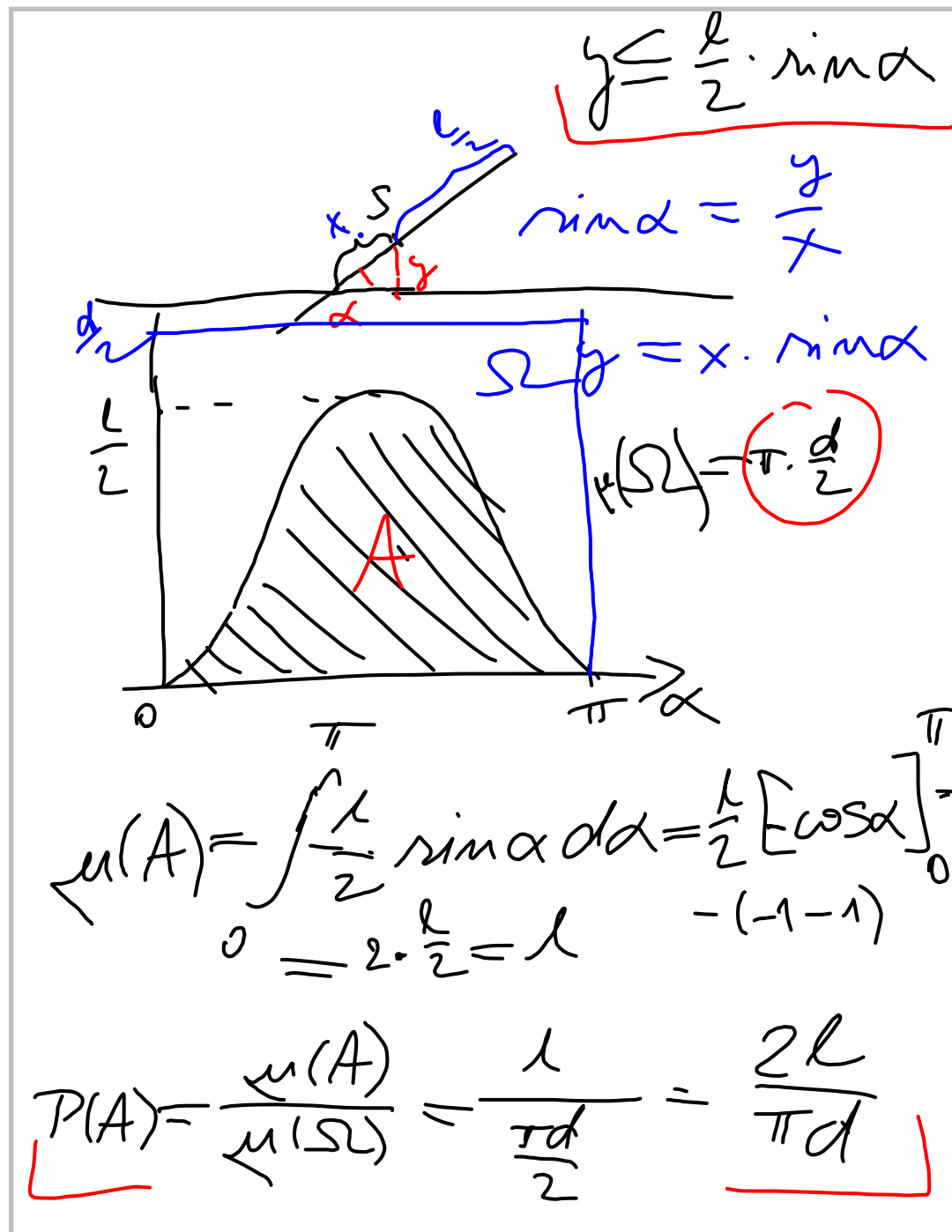


$$\lambda < d$$



ω_i - "rodné" ω_i

$$\Omega = \{\omega_1, \omega_2, \dots, \omega_6\}$$

$$\mathcal{A} = \{\emptyset, \Omega, \{\omega_1, \omega_2, \omega_3\}, \{\omega_4, \omega_5, \omega_6\}\}$$

$$X = \begin{cases} 0 & \leq 3 \\ 1 & > 3 \end{cases} \quad Y = \begin{cases} 0 & \text{sudé} \\ 1 & \text{liché} \end{cases}$$

$$X: X(\omega_1) = 0 \quad X(\omega_2) = 0$$

$$X(\omega_3) = 0 \quad X(\omega_4) = 1$$

$$X(\omega_5) = 1 \quad X(\omega_6) = 1$$

$$\underline{(X(\omega) \in \mathcal{B})} \Leftrightarrow \underline{(X(\omega) \leq x)}$$

$$x < 0 \Rightarrow \{\omega \in \Omega; X(\omega) < x\} = \emptyset \notin \mathcal{A}$$

$$0 \leq x < 1 \Rightarrow \{\omega \in \Omega; X(\omega) < x\} = \{\omega_1, \omega_2, \omega_3\} \in \mathcal{A}$$

$$x \geq 1 \Rightarrow \{\omega \in \Omega; X(\omega) < x\} = \{\omega_4, \omega_5, \omega_6\} \in \mathcal{A}$$

X -Náh.vel. pro \mathcal{A}

$$Y = \begin{cases} 0 & \text{sudá,} \\ 1 & \text{lichá} \end{cases}$$

$$\overline{Y(\omega_1)} = 1 \quad \overline{Y(\omega_2)} = 0$$

$$\overline{Y(\omega_3)} = 1 \quad \overline{Y(\omega_4)} = 0$$

$$\overline{Y(\omega_5)} = 1 \quad \overline{Y(\omega_6)} = 0$$

$$y < 0: \{\omega \in \Omega; Y(\omega) < y\} = \emptyset \in \mathcal{A}$$

$$0 \leq y < 1: \{\omega \in \Omega; Y(\omega) < y\} = \{\omega_2, \omega_4, \omega_6\} \in \mathcal{A}$$

Y -neni Na'h.vel. \mathcal{A}

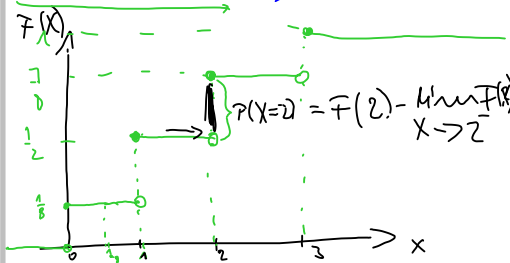
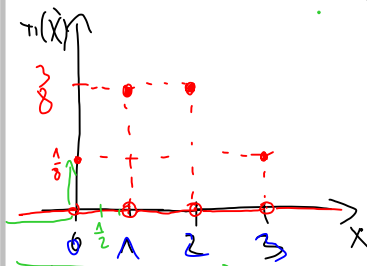
$$\omega_i = (\omega_{i1}, \omega_{i2}, \omega_{i3}) \quad \omega_{ij} = \begin{cases} R \\ L \end{cases}$$

$$\Omega = \{\omega_1, \omega_2, \dots, \omega_8\}$$

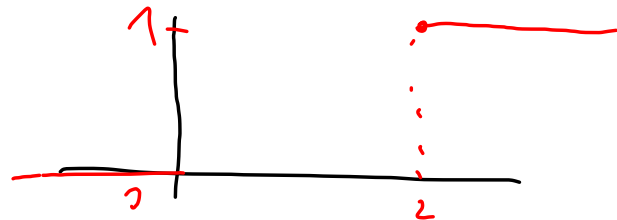
i	ω_i	$X(\omega_i)$	$P(X=x)$	$P(X \leq x)$
1	(R, R, R)	0	$\frac{1}{8} (\pi(0))$	$\frac{1}{8}$
2	(R, R, L)	1	$\frac{3}{8} (\pi(1))$	$\frac{4}{8}$
3	(R, L, R)	1		
4	(L, R, R)	1		
5	(L, L, R)	2	$\frac{3}{8} (\pi(2))$	$\frac{7}{8}$
6	(L, R, L)	2		
7	(R, L, L)	2		
8	(L, L, L)	3	$\frac{1}{8} (\pi(3))$	1

$$N = \{0, 1, 2, 3\}$$

$$F(x) = P(X \leq x) = \begin{cases} 0 & x < 0 \\ \frac{1}{8} & 0 \leq x < 1 \\ \frac{4}{8} & 1 \leq x < 2 \\ \frac{7}{8} & 2 \leq x < 3 \\ 1 & 3 \leq x \end{cases}$$



$$F(x) = \begin{cases} 0 & x < 0 \\ a \cdot x^2 & 0 \leq x < 2 \\ 1 & 2 \leq x \end{cases}$$



$$0 \leq ax^2 \leq 1$$

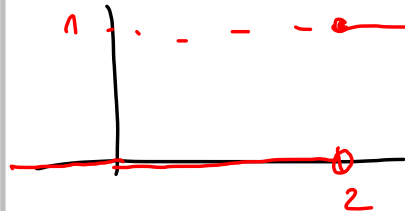
$a \geq 0$

$$ax^2 \leq 1 \quad x \in (0, 2)$$

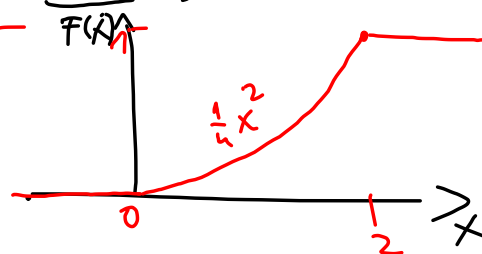
$$x=2 \Rightarrow a \cdot 4 \leq 1$$

$$a \leq \frac{1}{4}$$

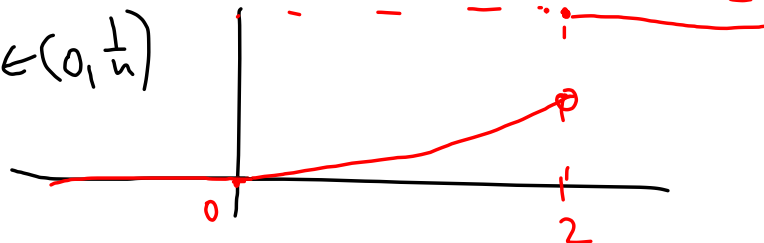
$a=0$



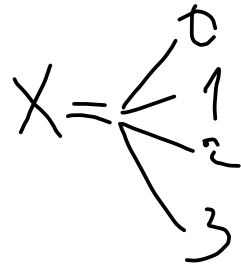
$a = \frac{1}{4}$



$a \in (0, \frac{1}{4})$



X - počet nevyhovujících
mezí 3.



$$\pi(x) = P(X=x) = \begin{cases} 0,9 & x=0 \\ 3 \cdot 0,9 \cdot 0,1 & x=1 \\ 3 \cdot 0,9 \cdot 0,1^2 & x=2 \\ 0,1^3 & x=3 \\ 0 & \text{jinak} \end{cases}$$

$$F(x) = P(X \leq x) = \begin{cases} 0 & x < 0 \\ 0,729 & 0 \leq x < 1 \\ 0,972 & 1 \leq x < 2 \\ 0,999 & 2 \leq x < 3 \\ 1 & 3 \leq x \end{cases}$$

$$F(2) = P(X \leq 2) = 0,999$$

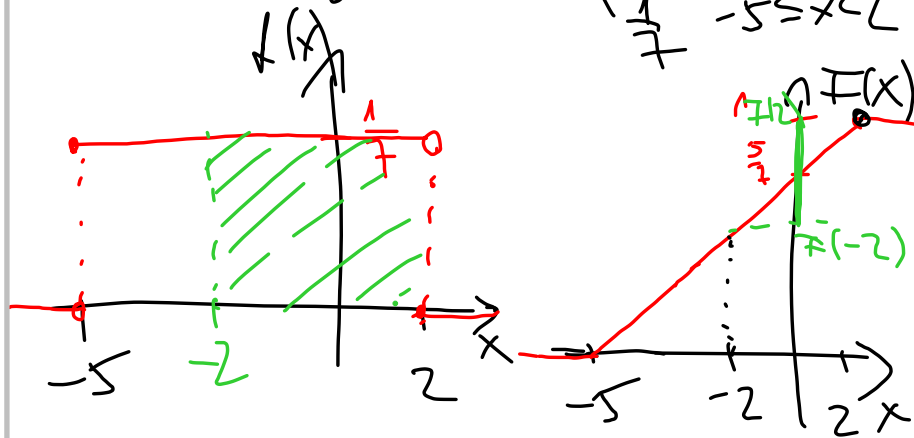
$$F(2,5) = P(X \leq 2,5) = 0,999$$

$$\pi(x) = P(X=x) = \begin{cases} \binom{3}{x} 0,1^x \cdot 0,9^{3-x} & x=0,1,2,3 \\ 0 & \text{jinak} \end{cases}$$

Binomické rozdělení!

$$F(x) = \begin{cases} 0 & x < -5 \\ \frac{x+5}{7} & -5 \leq x < 2 \\ 1 & x \geq 2 \end{cases}$$

$$1. \quad f(x) = \frac{dF(x)}{dx} = \begin{cases} 0 & x < -5 \\ \frac{1}{7} & -5 \leq x < 2 \\ 0 & x \geq 2 \end{cases}$$



$$2. \quad P(-2 < X < 2) = F(2) - F(-2) = 1 - \frac{3}{7} = \frac{4}{7}$$

$$3. \quad P(X = 2) = 0$$

$$4. \quad P(-6 < X < 1) = F(1) - F(-6) = \frac{6}{7} - 0 = \frac{6}{7}$$