Dvě mince: $X^{-1}(z) = \{\omega \in \Omega : X(\omega) = z\} \in \mathcal{A}$

nesrovnává se
$\tilde{\mathcal{A}} = \{\emptyset, \Omega\}$ | $\mathcal{A} = \{\{RR\}, \{LL\}, \{LR, RL\}, \emptyset, \Omega, \{LL, RL, LR\}, \{RR, LR, RL\}, \{LL, RR\}\}$
$\mathcal{A} \subset \tilde{\mathcal{A}} = 2^\Omega$ také splňuje

$X^{-1}(0) = \{RR\}$ $X^{-1}(1) = \{LR, RL\}$
$X^{-1}(2) = \{LL\}$ $X^{-1}(6) = \emptyset$

$X^{-1}(\{0,1,2\})$ $X^{-1}(\{1,2\})$

Hlasovací otázka: A B

A) $X^{-1}(0) = \Omega \in \mathcal{A}$, $X^{-1}(z) = \emptyset \in \mathcal{A}$ pro $z \neq 0$

B) $X^{-1}(0) = \{a, b\} \in \mathcal{A}$, $X^{-1}(1) = \{c, d\} \in \mathcal{A}$

C) $X^{-1}(0) = \{a\} \notin \mathcal{A}$, $X^{-1}(1) = \{b, c, d\} \notin \mathcal{A}$

D) $X^{-1}(0) = \{a\} \notin \mathcal{A}$, $X^{-1}(1) = \{b\} \in \mathcal{A}$

E) $X^{-1}(0) = \{a, c\} \notin \mathcal{A}$, ...

11.2: relevantní $z = 0, 1, \dots, n$

$$\mathbb{P}(X = z) = \binom{n}{z} p^z (1-p)^{n-z}$$

11.3: $\sum_{z=151}^{160} \binom{160}{z} \left(\frac{9}{10}\right)^z \left(\frac{1}{10}\right)^{160-z} = \sum_{z=151}^{160} \mathbb{P}(X = z) = \mathbb{P}(X \geq 151) =$

$= \mathbb{P}(\text{někdo je navíc}) = 0{,}036$

$X$ = počet cestujících, kteří přišli

$X \sim Bi(160, 0{,}9)$

11.4: relevantní $z$: $-n, -n+1, \dots, 0, 1, \dots, n$
(pevné $n \in \mathbb{N}$)

Pozorování: $\mathbb{P}(S_n = n-1) = 0$, $\mathbb{P}(S_2 = 1) = 0$ $\Rightarrow$
$\forall n \in \mathbb{N}$

$\Rightarrow$ $\mathbb{P}(S_n = z) = 0$ pro $n$ liché, $z$ sudé,
($z, n$ mají různou paritu) $n$ sudé, $z$ liché.

$$P(S_{2m} = 2\ell) = \binom{2m}{m+\ell}\left(\frac{1}{2}\right)^{m+\ell}\left(\frac{1}{2}\right)^{m-\ell}$$

$m \in \mathbb{N}$, $\ell \in \mathbb{N}_0$ $= \binom{2m}{m+\ell}\left(\frac{1}{2}\right)^{2m}$

(+ symetrie)

$x$ kroků vpravo $(+1)$

$2m - x$ vlevo $(-1)$

$S_{2m} = 2\ell = x - (2m - x)$

$2\ell = 2x - 2m$, $x = m + \ell$

$P(S_{2m+1} = 2\ell + 1) = ?$