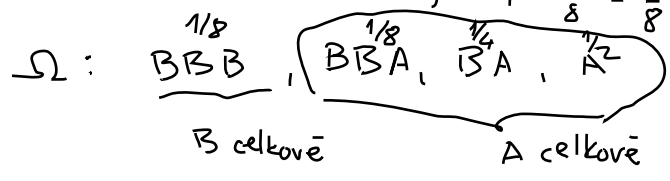


2.1: A ... 5 bodů
B ... 3 body

$P(A \text{ celkově vyhraje}) = ?$
 $P(B \text{ celkově vyhraje}) = ?$

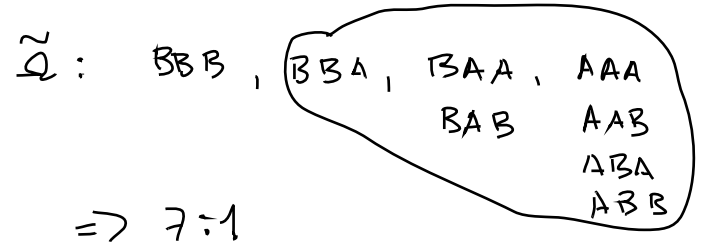
$P(B \text{ celkově vyhraje}) = (\frac{1}{2})^3 = \frac{1}{8} = P(BBB)$

$P(A \text{ celkově vyhraje}) = 1 - \frac{1}{8} = \frac{7}{8}$



... NENÍ to klasická Pst.

$P(A \text{ celkově}) = \frac{1}{2} + \frac{1}{4} + \frac{1}{8} = \frac{7}{8}$

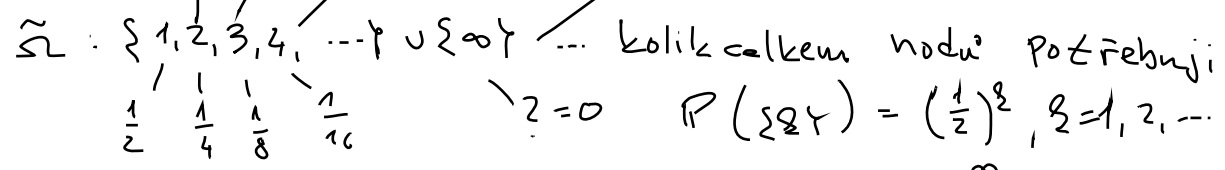


JE klasická Pst. ... všechny $\frac{1}{8}$

$P(A \text{ celkově}) = \frac{|A|}{|\tilde{\Omega}|} = \frac{7}{8}$

hodiny, dokud nepadne líč:

$\Omega = \{L, RL, RRL, RRRL, \dots\} \cup \{(R)^n\} = \{(R)^n L, n=0,1,\dots\} \cup \{(R)^n\}$
 $RRRR \dots = (R)^\infty$



$P(\{2\}) = (\frac{1}{2})^2, \{3\} = (\frac{1}{2})^3, \dots$

$P(\{\infty\}) = 1 - \sum_{k=1}^{\infty} P(\{k\}) = 1 - 1 = 0$

(i) $P(\emptyset) = 0 \dots 1 = P(\Omega) \stackrel{\downarrow}{=} P(\Omega \cup \emptyset) = P(\Omega) + P(\emptyset) = 1 + P(\emptyset) \rightarrow P(\emptyset) = 0$
 \uparrow disj.

(ii) $P(A) + P(A^c) = 1 \dots P(A) + P(A^c) = P(A \cup A^c) = P(\Omega) = 1$
 $\rightarrow A, A^c \dots$ disj.

(iii) $A \subseteq B, A, B \subseteq \Omega \Rightarrow P(A) \leq P(B) \dots B = A \cup (B \setminus A)$
 \uparrow disj.
 $P(B) = P(A) + P(B \setminus A)$

(iv) $0 \leq P(A) \leq 1 \quad \forall A \subseteq \Omega \dots 0 = P(\emptyset) \leq P(A) \dots \emptyset \subseteq A$
 \uparrow definice
 $A \subseteq \Omega \Rightarrow P(A) \stackrel{(iii)}{\leq} P(\Omega) = 1$

$$2.2: a) \frac{1}{\binom{49}{6}} = \frac{1}{13\,983\,816}$$

$$b) \left(\frac{1}{2}\right)^{24} = \frac{1}{16\,777\,216}$$

$$c) \frac{\binom{20}{13}}{\binom{52}{13}} = \frac{1}{8\,191\,609}$$

$$d) \left(\frac{1}{37}\right)^6 + \overset{\rightarrow 0}{\left(\frac{1}{37}\right)^5} \cdot \overset{\rightarrow \text{ne-nula}}{\left(\frac{36}{37}\right)} \cdot \binom{6}{1} = \frac{1}{11\,823\,624}$$

$\hookrightarrow 6 \times 0 \quad \hookrightarrow 5 \times 0$

klasovaci otázka 2: 6ti hody kostkou, nějaké číslo vícekrát?

$$1 - \underbrace{P(3 \text{ různá čísla})}_{\binom{6}{1}\binom{5}{1}\binom{4}{1}} = P(\text{nějaké číslo vícekrát}) = 1 - \frac{10}{18} = \frac{8}{18} = \frac{4}{9}$$

$$1 - \left(\frac{6}{6}\right)\left(\frac{5}{6}\right)\left(\frac{4}{6}\right) = \frac{5}{6} \cdot \frac{2}{3} = \frac{10}{18} = 0.\overline{4} \Rightarrow \boxed{C}$$

$$P(\text{nějaké vícekrát}) = P(1 \text{ vícekrát}) + \dots + P(6 \text{ vícekrát}) =$$

$$= 6 \cdot \left(\left(\frac{1}{6}\right)^3 + \left(\frac{1}{6}\right)^2 \cdot \left(\frac{5}{6}\right) \cdot \binom{3}{1} \right) = \dots = \frac{4}{9} \Rightarrow \boxed{C}$$