$(22, 6)$

$$z = (22^{10})^{-1} \cdot 6 \mod 41$$

$$22^{10} = 22^2 \cdot (22^2)^2 \cdot (22^2)^2 \equiv (-8) \cdot (-8)^2 \cdot (-8)^2 =$$

$$= -8 \cdot 23 \cdot 23 = (-20) \cdot 23 \equiv -9 \ (41)$$

$$\begin{array}{r} 22^2 \\ 22 \\ \hline 44 \\ 44 \\ \hline 484 \end{array}$$

$484 : 41 = 12$

zb. (-8)

$$\begin{array}{r} 23 \\ 8 \end{array}$$

$184 : 41 = 4$

Určeme inverzi z prvku

$-9 \equiv 32 \ (41)$:

$41 = 32 + 9$

$32 = 27 + 5$

$27 = 5 \cdot 5 + 2$

$5 = 2 \cdot 2 + 1 \implies 1 = 5 - 2 \cdot 2$

$\implies (-9)^{-1} = 9$

$$\int_0^3 ax^2 = 1 \Rightarrow a\left[\frac{x^3}{3}\right]_0^3 = 1 \Rightarrow 9a = 1 \Rightarrow a = \frac{1}{9}$$

$$f_X(s) = \frac{1}{9}\cancel{x}s^2 \Rightarrow$$

$$F_X(s) = \frac{1}{27}s^3$$

$Z = X^3$ ... objem rychle

$$F_Z(s) = P[Z < s] = P[X^3 < s] = P[X < \sqrt[3]{s}] =$$

$$= F_X(\sqrt[3]{s}) = \frac{1}{27}s$$

$s \in (0, 27)$

$$\Rightarrow f_Z(s) = \frac{1}{27}$$

X ... počet padlých hlav

Y ... počet padlých orlů

$$P\left(|X-Y| \geq 82\right) = 1 - P\left(|X-Y| < 82\right) =$$

$$= 1 - P\left[X \in (800-41, 800+41)\right] = 1 - \underbrace{P\left[X \in (759, 841)\right]}$$

$$X \sim Bi\left(1600, \tfrac{1}{2}\right)$$

$$\frac{X-800}{\sqrt{1600\left(\frac{1}{2}\right)\left(1-\frac{1}{2}\right)}} = \frac{X-800}{\sqrt{400}} = \frac{X-800}{20} \approx N(0,1)$$

$$\frac{X-np}{\sqrt{np(1-p)}} \xrightarrow[n \to \infty]{} N(0,1)$$

$$1 - P[759 < X < 841] =$$

$$1 - P\left[-\frac{41}{20} < \frac{X-800}{20} < \frac{41}{20}\right] =$$

$$1 - \left(\Phi(2{,}05) - \Phi(-2{,}05)\right) =$$

$$= 2\,\Phi(-2{,}05) \doteq 0{,}0404$$

Φ ... distr. fce norm. rozdělení

1. rok ... úrok 3%

2. rok 5%

3. rr 5%

---

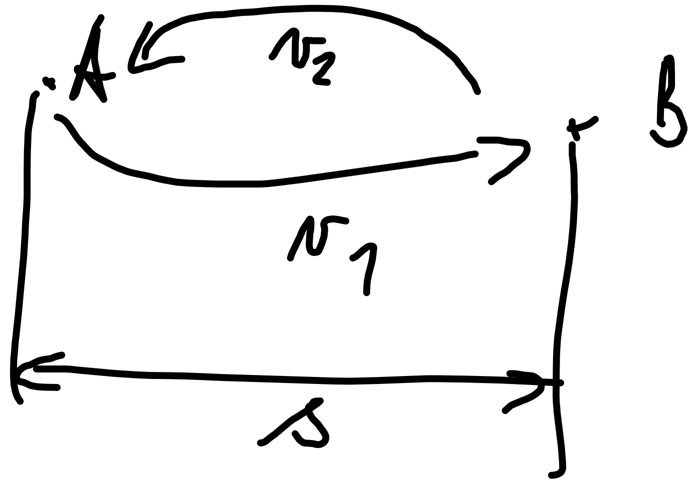
za 3 roky bych . ?

$(1{,}03)(1{,}05)(1{,}05) = \bar{x}_G^3$

---

průměrná rychlost ... harmonický průměr.

$$\bar{x}_A = \frac{2s}{\frac{s}{v_1} + \frac{s}{v_2}} = \frac{2}{\frac{1}{v_1} + \frac{1}{v_2}}$$



$$S(d) = \frac{1}{n} \sum_{i=1}^{n} (x_i - d)^2 = \frac{1}{n} \sum_{i=1}^{n} \left[(x_i - \bar{x}) + (\bar{x} - d)\right]^2 =$$

$$= \frac{1}{n} \sum_{i=1}^{n} \left[2\left(x_i \bar{x} - x_i d - \bar{x}^2 + \bar{x} d\right) + (x_i - \bar{x})^2 + (\bar{x} - d)^2\right] =$$

$$= \frac{1}{n} \sum_{i=1}^{n} (x_i - \bar{x})^2 + n(\bar{x} - d)^2$$

$\Rightarrow$ minimum $S(d)$ pro $d = \bar{x}$

$$D(d) = \underbrace{|x_1 - d| + |x_n - d|} + \underbrace{|x_2 - d| + |x_{n-1} - d|} + \dots$$

$$=$$

$$|x_{\frac{n}{2}+1} - d| + |x_{\frac{n}{2}} - d|$$

$\cdot 1$

$\cdot 1$
$\cdot 1$
$\cdot 2$
$\cdot 3$
$\cdot 3$

$\cdot 2$

$\cdot 1$

$\cdot 1$

$$P(W_i = 1) = \frac{\binom{N-1}{n-1}}{\binom{N}{n}} = \frac{n}{N}$$

$$\operatorname{var} W_i = E W_i^2 - (E W_i)^2$$

$$E\bar{X} = 4$$