$$a^{-n} = \frac{1}{a^n}$$

$$a^{\frac{m}{n}} = \sqrt[n]{a^m}$$

$$a^{-\frac{m}{n}} = \frac{1}{\sqrt[n]{a^m}}$$

$$\binom{n}{k} = \frac{n!}{k!(n-k)!}$$

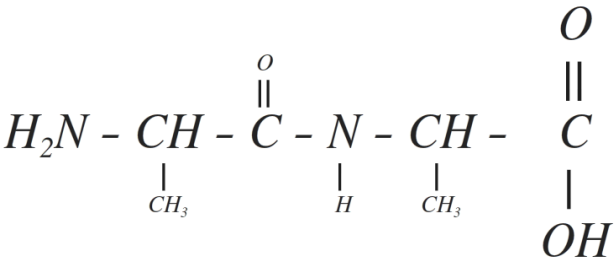
$$S_n = \frac{a_1 + a_n}{2} \cdot n = \frac{2a_1 + (n-1)r}{2} \cdot n$$

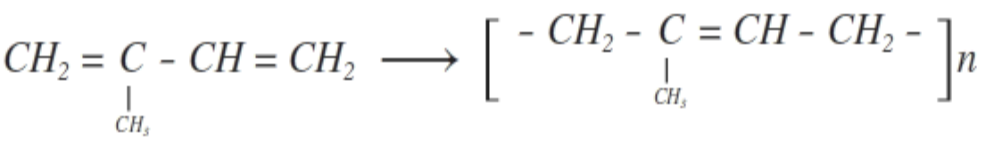
$$S_n = \begin{cases} a_1 \cdot \dfrac{1-q^n}{1-q} & \text{dla} \quad q \neq 1 \\ n \cdot a_1 & \text{dla} \quad q = 1 \end{cases}$$

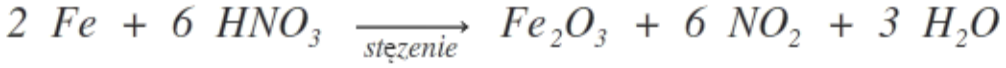
$$\tau = \langle t \rangle = \frac{\int_0^\infty te^{-\lambda t}dt}{\int_0^\infty e^{-\lambda t}dt} = \frac{-1/\lambda^2}{-1/\lambda} = \frac{1}{\lambda}$$

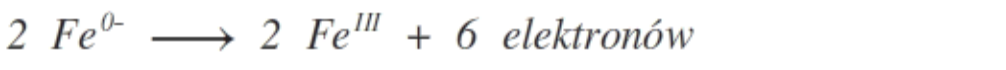
$N(t) = N_0 \cdot \left(\frac{1}{2}\right)^{\frac{t}{T_{1/2}}}$	$C\% = \frac{m_s}{m_{roztw.}} \cdot 100\%$
$p(t) = \frac{N(t)}{N_0} = e^{(-\lambda t)}$	$t = T_{1/2} = \frac{\ln 2}{\lambda}$

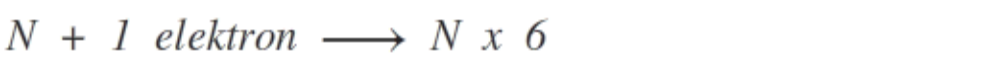
WZORY CHEMICZNE

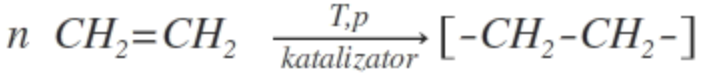


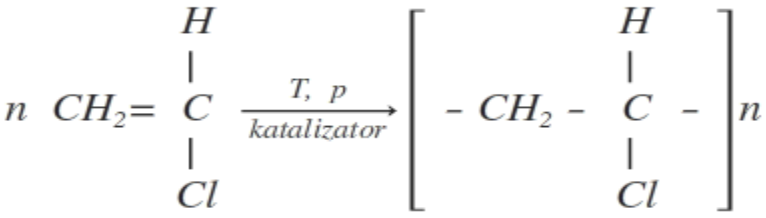


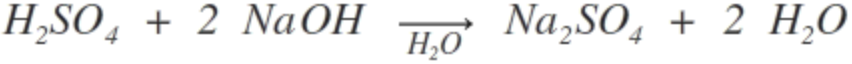


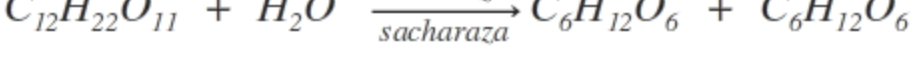












$$[H^+] = c_0 + \frac{K_W}{[H^+]}$$

$$[H^+]^2 - c_0[H^+] - K_W = 0$$

$$n\ CF_2{=}CF_2 \xrightarrow[katalizator]{T,\ p} \left[- \underset{\displaystyle F}{\overset{\displaystyle F}{\underset{|}{\overset{|}{C}}}} - \underset{\displaystyle F}{\overset{\displaystyle F}{\underset{|}{\overset{|}{C}}}} - \right] n$$

$$\begin{array}{l} CH - O - CO - C_{17}H_{35} \\ | \\ CH - O - CO - C_{17}H_{35} \\ | \\ CH - O - CO - C_{17}H_{33} \end{array}$$

EKONOMIA WZORY

$$\begin{aligned}\int e^x \cos x \, dx &= \operatorname{Re}\left\{ \frac{e^{(1+i)x}}{1+i} \right\} + C \\ &= e^x \operatorname{Re}\left\{ \frac{e^{ix}}{1+i} \right\} + C \\ &= e^x \operatorname{Re}\left\{ \frac{e^{ix}(1-i)}{2} \right\} + C \\ &= e^x \, \frac{\cos x + \sin x}{2} + C.\end{aligned}$$

$$PV_{zdolu} = A \cdot \left(m + \frac{m-1}{2} \cdot \frac{r_n}{n} \right) \cdot \frac{1 - \left(1 + \frac{r_n}{n}\right)^{-n \cdot t}}{\frac{r_n}{n}}$$

$$PV_{zgory} = A \cdot \left(m + \frac{m+1}{2} \cdot \frac{r_n}{n} \right) \cdot \frac{1 - \left(1 + \frac{r_n}{n}\right)^{-n \cdot t}}{\frac{r_n}{n}}$$

$$FV_{zdolu} = A \cdot \left(m + \frac{m-1}{2} \cdot \frac{r_n}{n} \right) \cdot \frac{\left(1 + \frac{r_n}{n}\right)^{n \cdot t} - 1}{\frac{r_n}{n}}$$

$$FV_{zgory} = A \cdot \left(m + \frac{m+1}{2} \cdot \frac{r_n}{n} \right) \cdot \frac{\left(1 + \frac{r_n}{n}\right)^{n \cdot t} - 1}{\frac{r_n}{n}}$$

Wzory: błędy prognoz

$$e = \frac{\sum_{i=1}^{n} (P_i - \mathrm{Pr}_i)}{n}$$

$$d = \frac{\sum_{i=1}^{n} |P_i - \mathrm{Pr}_i|}{n}$$

$$\psi = \frac{\sum_{i=1}^{n} \left| \frac{P_i - \mathrm{Pr}_i}{P_i} \right|}{n}$$

$$s = \sqrt{\frac{\sum_{i=1}^{n} (P_i - \mathrm{Pr}_i)^2}{n-1}}$$

$$P = 1 - \frac{\frac{(N-G)!}{(N-2G)!} \sum_{C=0}^{G} \left(\binom{G}{C} \frac{G!\,(N-2G)!^2}{C!\,(N-2G-C)!} \sum_{D=0}^{C} \left(\frac{(N-2G-C)!}{(N-3G-C+D)!} \mathbb{S}(G-D;\, N-G) \sum_{E=0}^{MIN(D;\, G-C)} \left(\binom{C}{D-E} \binom{G-C}{E} \frac{\mathbb{S}(C-D+E;\, C)}{(C-D)!} \right) \right) \right)}{N! \left[\frac{N!}{e} \right]}$$

$$\alpha = \frac{(n-1)\sum_{t=1}^{n-1} y_t u_t - \sum_{t=1}^{n-1} y_t \sum_{t=1}^{n-1} u_t}{(n-1)\sum_{t=1}^{n-1} y_t^2 - \left(\sum_{t=1}^{n-1} y_t\right)^2}$$

$$\beta = \frac{1}{n-1}\sum_{t=1}^{n-1} u_t - \frac{\alpha}{n-1}\sum_{t=1}^{n-1} y_t$$