

# Wzory – katalog

Dział Wydawnictw IMPAN  
publ@impan.pl  
<https://www.impan.pl/pl/wydawnictwa/dla-autorow>

10 kwietnia 2018

- *Uwaga ogólna:* wymagany styl `amsart` lub `\usepackage{amsmath}`

## 1 Jeden wzór

$$(1.1) \quad \begin{aligned} & aaaaaaaaaaaaaaaaaaaaaaaaaaaaaa \\ & \quad + bbbbbbbbbbbbbbbbbbbbbbbbbbbbbbb \\ & \hspace{15em} \leq ddddddddddddddddddddddd. \end{aligned}$$

```
\begin{multline}\label{E:m1}
aaaaaaaaaaaaaaaaaaaaaaaaaaaaa\\
+ bbbbbbbbbbbbbbbbbbbbbbbbbbb\\
\le ddddddddddddddddddd.
\end{multline}
```

---

$$(1.2) \quad \begin{aligned} & aaaaaaaaaaaaaaaaaaaaaaaaaaaaaa \\ & \quad + bbbbbbbbbbbbbbbbbbbbbbbbbbb + dddddd - ggggggg \\ & \hspace{15em} \times eeeeeeeeeeeeeeeeeee \\ & \hspace{15em} \leq ddddddddddddddddddd. \end{aligned}$$

```
\begin{multline}\label{E:m2}
aaaaaaaaaaaaaaaaaaaaaaaaaaaaa\\
\shoveleft{+ bbbbbbbbbbbbbbbbbbbbbbb + dddddd - ggggggg}\ \\
\shoveright{\times eeeeeeeeeeeeeeeeeee}\ \\
\le ddddddddddddddddddd.
\end{multline}
```

---

$$(1.3) \quad \begin{aligned} & aaaaaaaaaaaaaaaaa + xxxxxxxxxxx \\ & < bbbbbbbbbbbbbbbbbbb \\ & + [ddddd + eeeee][hhhhhhh - ggggggggg] \\ & < cccccccccccccccccc. \end{aligned}$$

```
\begin{multline}\label{E:m3}
aaaaaaaaaaaaaaaa + xxxxxxxxxxx\
\begin{aligned}
&< bbbbbbbbbbbbbbbbbbb\
&\quad + [ddddd + eeeee][hhhhhhh - ggggggggg]\
&< cccccccccccccccccc.
\end{aligned}
\end{multline}
```

$$(1.4) \quad \begin{array}{c} \phantom{Pascal_3} \\ \phantom{Pascal_3} \\ Pascal_3 = \begin{array}{ccc} & 1 & \\ 1 & 2 & 1 \\ & 1 & 3 & 3 & 1 \end{array} \end{array}$$

```
\begin{equation}\label{E:pasc}
\mathrm{Pascal}_3 = \begin{gathered}
1\
1\ 2\ 1\
1\ 3\ 3\ 1\
\end{gathered}
\end{equation}
```

$$(1.5) \quad \begin{array}{ccc} & & 1 \\ & 1 & 1\ 2\ 1 \\ 1\ 2\ 1 & 1\ 3\ 3\ 1 & \end{array}$$

```
\begin{equation}
\begin{split}
\begin{gathered}[b]
1\
1\ 2\ 1\
\end{gathered}
\quad
\begin{gathered}[b]
1\
1\ 2\ 1\
1\ 3\ 3\ 1\
\end{gathered}
\end{split}
\end{equation}
```

---

```

          1      1
        1 2 1    1 2 1
              1 3 3 1

\begin{equation*}
\begin{gathered}[t]
1\\
1\ 2\ 1
\end{gathered}
\quad
\begin{gathered}[t]
1\\
1\ 2\ 1\\
1\ 3\ 3\ 1
\end{gathered}
\end{equation*}

```

---

$$(1.6) \quad A = zt = ztuv + [f_1(a, b, c, d, e, f, g, h), \\ f_2(a, b, c, d, e, f, g, h), \\ f_3(a, b, c, d, e, f, g, h)] \\ = ccccccccccccc$$

```

\begin{equation}\label{E:top}
\begin{aligned}[t]
A \quad &= \begin{aligned}[t]
zt = ztuv + [f_1(a,b,c,d,e,f,g,h), \\
&f_2(a,b,c,d,e,f,g,h), \\
&f_3(a,b,c,d,e,f,g,h)]
\end{aligned} \\
&= ccccccccccccc\notag
\end{aligned}
\end{equation}

```

---

$$(1.7) \quad xxxxx = yyyyyyyyyyyyyyy + [eeee \\ \times zzzzzzzzzzzzzzzzzz] \\ = tttttttttttttttt \\ = vvvvvvvvvvv.$$

```

\usepackage{mathtools}
\begin{equation}\label{E:shove1}
\begin{aligned}[t]
xxxxx \quad &= yyyyyyyyyyyyyyy + [eeee \quad \\
\quad &\MoveEqLeft[-10] \times zzzzzzzzzzzzzzzzzz] \\
&= tttttttttttttttt \quad \\
&= vvvvvvvvvvv.
\end{aligned}
\end{equation}

```

(1.8) Here you can place any statement, even taking several lines of text and including displayed formulas, like

$$aaaa = bbb.$$

(1.9) Next item.

```
\usepackage{enumitem}
\newcommand{\Item}{\refstepcounter{equation}\item}

\begin{enumerate}[label=(\theequation), ref=\theequation, leftmargin=2.5em]
\Item\label{E:text4} Here you can place any statement, even taking several lines
of text and including displayed formulas, like
\[
aaaa=bbb.
\]
\Item\label{E:text5} Next item.
\end{enumerate}
```

## 2 Kilka wzorów albo układy warunków

$$(2.1) \quad aaaaaaaaa = b, \quad cc = xxx, \quad dd = yyy,$$

$$(2.2) \quad mmmmmmmmmmmmmmm = 0 \quad \text{for all } i = 1, \dots, n.$$

```
\begin{gather}
aaaaaaaaaa = b, \quad \quad \quad cc = xxx, \quad \quad \quad dd = yyy, \quad \label{E:g1} \\
mmmmmmmmmmmmmm = 0 \quad \quad \quad \text{for all } i=1, \dots, n. \quad \label{E:g2}
\end{gather}
```

$$(2.3) \quad aaaaaaaaa = b, \quad cc = xxx, \quad dd = yyy,$$

$$mmmmmmmmmmmmmmmm = 0 \quad \text{for all } i = 1, \dots, n.$$

```
\begin{gather}
aaaaaaaaaa = b, \quad \quad \quad cc = xxx, \quad \quad \quad dd = yyy, \quad \notag \\
mmmmmmmmmmmmmm = 0 \quad \quad \quad \text{for all } i=1, \dots, n. \quad \label{E:g3}
\end{gather}
```

$$aaaaaaaaaaaa = b, \quad cc = xxx, \quad dd = yyy,$$

$$mmmmmmmmmmmmmmmmmm = 0 \quad \text{for all } i = 1, \dots, n.$$

```
\begin{gather*}
aaaaaaaaaa = b, \quad \quad \quad cc = xxx, \quad \quad \quad dd = yyy, \\
mmmmmmmmmmmmmmmm = 0 \quad \quad \quad \text{for all } i=1, \dots, n.
\end{gather*}
```



$$\begin{aligned}
 (2.10) \quad & xxxxx = yyyyyyyyyyyyyyy \\
 & \quad + zzzzzzzzzzzzzzzzzz, \\
 & bbb = tttttttttttttttt, \\
 & hh = vvvvvvvvvv.
 \end{aligned}$$

```

\begin{equation}\label{E:a4}
\begin{split}
xxxxx &= yyyyyyyyyyyyyyy\ \\
&\quad + zzzzzzzzzzzzzzzzzz, \\
bbb &= tttttttttttttttt, \\
hh &= vvvvvvvvvv.
\end{split}
\end{equation}

```

$$\begin{aligned}
 (2.11) \quad & aaaaaaaaaaaaaaaaaaaaaa = bbbbbbbbbbbb, \\
 & \quad bbbb = xxxxxx,
 \end{aligned}$$

$$\begin{aligned}
 (2.12) \quad & ccccc = yyyyyyy, \\
 & ddddddd = zzzzz.
 \end{aligned}$$

```

\begin{align}
\begin{split}
aaaaaaaaaaaaaaaaaaaaaa &= bbbbbbbbbbbb, \\
&\quad bbbb = xxxxxx,
\end{split}
\end{align}
\label{E:a5}
\begin{split}
cccccc &= yyyyyyy, \\
ddddddd &= zzzzz. \label{E:a6}
\end{split}
\end{align}

```

$$\begin{aligned}
 (2.13) \quad & aaaaaaaaaaaaaaaaaaaaaa = bbbbbbbbbbbb, \\
 & bbbbbbbbbbbbbbbbbbbbbb = xxxxxx,
 \end{aligned}$$

$$\begin{aligned}
 (2.14) \quad & ccccc = yyyyyyy, \\
 & ddddddd = zzzzz.
 \end{aligned}$$

```

\begin{gather}
\begin{split}
& aaaaaaaaaaaaaaaaaaaaaa = bbbbbbbbbbbb, \\
& bbbbbbbbbbbbbbbbbbbbbb = xxxxxx,
\end{split}
\label{E:a7}
\begin{split}
& ccccc = yyyyyyy, \\
& ddddddd = zzzzz.
\end{split}
\label{E:a8}
\end{gather}

```

$$\begin{array}{lll} aa = bbb, & dd = ee & \text{(by Lemma 2),} \\ hh = ii, & ll = kkk & \text{(by (2.14)).} \end{array}$$

```
\begin{align*}
aa &= bbb, & & dd &= ee & & & \text{\text{(by Lemma 2),}} \\
hh &= ii, & & ll &= kkk & & & \text{\text{(by \eqref{E:a8}).}}
\end{align*}
```

$$\begin{array}{lll} (2.15) & aa = bbb, & dd = ee & \text{(by Lemma 2),} \\ (2.16) & hh = ii, & ll = kkk & \text{(by (2.14)).} \end{array}$$

```
\begin{alignat}{3}
aa &= bbb, \quad \& dd &= ee & & \text{\text{(by Lemma 2),}} \quad \text{\label{E:a9}} \\
hh &= ii, & ll &= kkk \quad \& & \text{\text{(by \eqref{E:a8}).}} \quad \text{\label{E:a10}}
\end{alignat}
```

$$\begin{array}{lll} (2.17) & aa = bbb, & dd = ee & \text{(by Lemma 2),} \\ & hh = ii, & ll = kkk & \text{(by (2.14)).} \end{array}$$

```
\begin{equation}\label{E:a11}
\begin{alignedat}{3}
aa &= bbb, \quad \& dd &= ee & & \text{\text{(by Lemma 2),}} \\
hh &= ii, & ll &= kkk \quad \& & \text{\text{(by \eqref{E:a8}).}}
\end{alignedat}
\end{equation}
```

$$\begin{array}{lll} (2.18a) & aa = bbb, & dd = ee & \text{(by Lemma 2),} \\ (2.18b) & hh = ii, & ll = kkk & \text{(by (2.14)).} \end{array}$$

```
\begin{subequations}\label{E:suba}
\begin{alignat}{3}
aa &= bbb, \quad \& dd &= ee & & \text{\text{(by Lemma 2),}} \quad \text{\label{E:suba1}} \\
hh &= ii, & ll &= kkk \quad \& & \text{\text{(by \eqref{E:a8}).}} \quad \text{\label{E:suba2}}
\end{alignat}
\end{subequations}
```

$$(2.19a) \quad \begin{aligned} &aaaaaaaaaaaaaaaaaaaaaa = bbbbbbbbbbbb, \\ &bbbbbbbbbbbbbbbbbbbb = xxxxxx, \end{aligned}$$

$$(2.19b) \quad \begin{aligned} &cccc = yyyyyy, \\ &ddddddd = zzzzz. \end{aligned}$$

```
\begin{subequations}\label{E:subg}
\begin{gather}
\begin{split}
& aaaaaaaaaaaaaaaaaaaaaaa = bbbbbbbbbbbb, \\
& bbbbbbbbbbbbbbbbbbbbbb = xxxxxx,
\end{split}
\end{gather}
\end{subequations}
```

$$(2.20) \quad xxxxx = yyyyyyyyyyyyyyy$$

(note that we have not used the full strength of  $(H)$  here, but only the concavity of  $f$ )

$$\begin{aligned} &= tttttttttttttt \\ &= vvvvvvvvvv. \end{aligned}$$

```
\begin{align} \label{E:inter}
xxxxx &= yyyyyyyyyyyyyyy \\
\intertext{note that we have not used the full strength of $(H)$ here,}
&= tttttttttttttt \notag \\
&= vvvvvvvvvv. \notag
\end{align}
```

### 3 Użycie makr

$$\left(\frac{1}{2}(u+v)\right)^2 = \frac{u + \frac{v+z}{g+rh}}{n+1} + \left(\prod_{i=1}^n A_i\right)^2 + \left(\binom{u}{v}' + \|A \setminus B\|\right)^n.$$

```
\[
\bigl(\tfrac{1}{2}(u+v)\bigr)^2
= \frac{u + \frac{v+z}{g+rh}}{n+1}
+ \Bigl(\prod_{i=1}^n A_i\Bigr)^2
+ \biggl(\binom{u}{v}' + \|A \setminus B\|\biggr)^n.
\]
```

$$(C) \quad f(x) \stackrel{\alpha}{=} \begin{cases} \sqrt[3]{2/\sin x} & \text{if } x \in (0, \pi), \\ 0 & \text{otherwise.} \end{cases}$$

```
\[
f(x)\overset{\alpha} =
\begin{cases}
\sqrt[3]{2/\sin x} & \text{\text{if } $x \in (0, \pi)$,}\ \\
0 & \text{\text{otherwise.}}
\end{cases}
\end{cases}
\tag{C}
\]
```

$$\mathbb{A} \xrightarrow{a+b+c+d} \mathbb{B} \xrightarrow[abc]{} \mathbb{C} \square \mathbb{D} \xrightarrow{d^2} \text{gdeg } E.$$

*Makra:*

```
\usepackage{amssymb}
\newcommand{\arr}{\xrightarrow}
\newcommand{\ssquare}{\mathbin{\square}}
\newcommand{\bA}{\mathbb{A}}
\newcommand{\bB}{\mathbb{B}}
\newcommand{\frC}{\mathfrak{C}}
\newcommand{\biD}{\boldsymbol{D}}
\DeclareMathOperator{\gdeg}{\mathsf{gdeg}}
```

*Kod:*

```
\[
\bA \arr{a+b+c+d} \bB \arr[abc]{} \frC \ssquare \biD \arr{d^2} \gdeg E.
\]
```

$$\sum'_{k < m, l < n} \binom{m+n}{k+l} = \prod_{\substack{k+l+m=3 \\ 2k-l+n \leq 7}} a_{kl}$$

*Makra:*

```
\newcommand{\prsum}{\sideset{}{\'}\sum}
\newcommand{\dprod}{\operatorname*{\prod}\prod}
```

*Kod:*

```
\prsum_{k < m, \, l < n} \binom{m+n}{k+l}
= \dprod_{\substack{k+l+m=3 \\ 2k-l+n \le 7}} a_{kl}
```

$$w^* \text{-}\lim_{n \rightarrow \infty} a_n = \begin{pmatrix} \langle a, b \rangle & \langle a, c \rangle \\ \langle c, a \rangle & \langle b, c \rangle \end{pmatrix}$$

*Makra:*

```
\newcommand{\wstlim}{\mathop{w^*\textup{-lim}}}
\def<#1>{\langle#1\rangle}
```

*Kod:*

```
\[
\wstlim_{n\to\infty} a_{n} =
\begin{pmatrix}
\langle a,b \rangle & \langle a,c \rangle \\
\langle c,a \rangle & \langle b,c \rangle
\end{pmatrix}
\]
```

$$\mathcal{F}^1 \mathbb{S}^{2+v} \mathbf{G}_4 + \mathcal{F}^2 \mathbb{S}^3 \mathbf{G}_{-4} + \mathcal{F} \mathbb{S}^2 \mathbf{G}_7$$

*Makra:*

```
\newcommand{\obj}[3]{\mathcal{F}^{#1}\mathbb{S}^{#2}\mathbf{G}_{#3}}
```

*Kod:*

```
\[
\obj{1}{2+v}{4} + \obj{2}{3}{-4} + \obj{}{2}{7}
\]
```