

Tartalomjegyzék

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Latex mathematical formulas

Formulas

Reproduce the following in latex:

$$a_{11}x_1 + a_{12}x_2 + \dots + a_{1n}x_n \leq b_1$$

$$a_{21}x_1 + a_{22}x_2 + \dots + a_{2n}x_n \leq b_2$$

⋮

$$a_{m1}x_1 + a_{m2}x_2 + \dots + a_{mn}x_n \leq b_m$$

where $x_i \geq 0 \forall i = 1, 2, \dots, n$. The form of the objective function:

$$z = c_1x_1 + c_2x_2 + \dots + c_nx_n \Rightarrow \max \text{ or } \min$$

The same with vectors and matrices:

$$\vec{x} \geq 0$$

$$A\vec{x} \leq \vec{b}$$

$$z = \vec{c}^T \vec{x} \Rightarrow \max \text{ or } \min$$

Matrices, tables

Try the tabular environment with different aligns! Create a 3x3 matrix with all kinds of brackets. Try to do an nxn matrix as well for example, try to create this formula from wikipedia: [matrix](#).

Reproduce this table (matrix):

	x_1	x_2	\cdots	x_n	\vec{b}
u_1	a_{11}	a_{12}	\cdots	a_{1n}	b_1
u_2	a_{21}	a_{22}	\cdots	a_{2n}	b_2
\vdots	\vdots	\vdots	\ddots	\vdots	\vdots
u_m	a_{m1}	a_{m2}	\cdots	a_{mn}	b_m
$-z$	c_1	c_2	\cdots	c_n	0

Theorems, definitions

Let's do some theorems. For that append this to the preamble:

```
\newtheorem{mydef}{Definition}
```

- Create a new theorem style environment!
- Try the different styles (remark, theorem, definition)!

Labels, references

Create references to your theorems:

```
\begin{theorem}\label{thm:sample_thm}
Theorem text
\end{theorem}
```

In Theorem `\ref{thm:sample_thm}` we...

Floating pictures

```
\begin{figure}[p]
\centering
\includegraphics[width=0.8\textwidth]{image.png}
\caption{Awesome Image}
\label{fig:awesome_image}
\end{figure}
```

Change the placement (h,t,p,b,!,H)!

BibTeX

BibTeX is a package to create nice looking bibliographies. Create a test bibliography using these sites:
<http://www.bibtex.org/Using/>, https://en.wikibooks.org/wiki/LaTeX/Bibliography_Management.