

**Very simple book with
mathematical formulas**

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Chapter 1. $\mathbb{L}^{\text{A}}\text{T}_{\text{E}}\text{X}Math$

The Java package $\mathbb{L}^{\text{A}}\text{T}_{\text{E}}\text{X}Math$ combining with FOP gives the possibility to write $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$ commands in Docbook.

This example has been written in using the CM Unicode fonts available at <http://sourceforge.net/projects/cm-unicode/>.

For example :

$$\phi_n(\kappa) = \frac{1}{4\pi^2\kappa^2} \int_0^\infty \frac{\sin(\kappa R)}{\kappa R} \frac{\partial}{\partial R} \left[R^2 \frac{\partial D_n(R)}{\partial R} \right] dR$$

We can use an example block :

Example 1.1.

$$\det \begin{bmatrix} a_{11} & a_{12} & \cdots & a_{1n} \\ a_{21} & \ddots & & \vdots \\ \vdots & & \ddots & \vdots \\ a_{n1} & \cdots & \cdots & a_{nn} \end{bmatrix} \stackrel{\text{def}}{=} \sum_{\sigma \in \mathfrak{S}_n} \varepsilon(\sigma) \prod_{k=1}^n a_{k\sigma(k)}$$

The formulas can be in displaystyle $\sum_{n=1}^{+\infty} \frac{1}{n^2} = \frac{\pi^2}{6}$ or in textstyle $\sum_{n=1}^{+\infty} \frac{1}{n^2} = \frac{\pi^2}{6}$.

Several centered formulas with gather environment :

$$\begin{aligned} ax + b &= 0 \\ ax^2 + bx + c &= 0 \\ ax^3 + bx^2 + cx + d &= 0 \end{aligned}$$

Several formulas with flalign environment :

$$\begin{aligned} 10xy^2 + 15x^2y - 5xy &= 5(2xy^2 + 3x^2y - xy) = \\ &= 5x(2y^2 + 3xy - y) = \\ &= 5xy(2y + 3x - 1) \end{aligned}$$

Several formulas with split environment :

$$\begin{aligned} 10xy^2 + 15x^2y - 5xy &= 5(2xy^2 + 3x^2y - xy) = \\ &= 5x(2y^2 + 3xy - y) = \\ &= 5xy(2y + 3x - 1) \end{aligned}$$

Splitting a long formula on several lines with multiline environment :

$$\begin{aligned} (1+x)^n &= 1 + nx + \frac{n(n-1)}{2!}x^2 + \\ &\quad + \frac{n(n-1)(n-2)}{3!}x^3 + \\ &\quad + \frac{n(n-1)(n-2)(n-3)}{4!}x^4 + \dots \end{aligned}$$

An array with vertical and horizontal lines and different sizes of font :

Matrix	Multicolumns		Font sizes commands
$\begin{pmatrix} \alpha_{11} & \cdots & \alpha_{1n} \\ \vdots & \ddots & \vdots \\ \alpha_{n1} & \cdots & \alpha_{nn} \end{pmatrix}$	Large Right	small Left	tiny Tiny
Huge Multicolumns			