Very simple book with mathematical formulas

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Chapter 1. $\mathbb{J}\mathrm{LaTeX}Math$

The Java package $\mathbb{J}\mathrm{LaTeX}Math$ combining with FOP gives the possibility to write LaTeX commands in Docbook.

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

Several centered formulas with gather environment :

$$ax + b = 0$$
$$ax^2 + bx + c = 0$$
$$ax^3 + bx^2 + cx + d = 0$$

Several formulas with flalign environment :

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

Several formulas with split environment :

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

Splitting a long formula on several lines with multline environment :

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