

# Examples in mathematical mode in C4

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## 1 A matrix

Here begins a text in line, followed by a matrix in line,  $A(x, y) = \begin{pmatrix} \frac{x}{y} & 0 & 0 \\ 1 & 0 & x \end{pmatrix}$ .

After the matrix, return into the text mode. But we can edit the same matrix on a separate line like this, with  $$$\dots$$$ :

$$A(x, y) = \begin{pmatrix} \frac{x}{y} & 0 & 0 \\ 1 & 0 & x \end{pmatrix}$$

or like this, with  $\backslash[\dots\backslash]$ :

$$A(x, y) = \begin{pmatrix} \frac{x}{y} & 0 & 0 \\ 1 & 0 & x \end{pmatrix}$$

## 2 Several equations

Here are several equations, numbered on separate lines. The equation counter is a variable called equation.

$$\lim_{n \rightarrow \infty} \left(1 + \frac{1}{n}\right)^n = e \tag{1}$$

$$F(s) = \int_0^\infty f(t)e^{-st}dt \tag{2}$$

This is an example of the `eqnarray` environment, allowing to align the = sign of several equations separated by `\`. The `\nonumber` command is placed before the equation we do not want to be numbered.

$$\begin{array}{rcl} x_n & = & x_{n-1} + x_{n-2} \end{array} \tag{3}$$

$$\begin{array}{rcl} f(x) & = & x^2 \\ g(x) & = & x^2 + y^2 \\ & & + z^2 \end{array} \tag{4}$$

If equation ?? is displayed in line it looks like this:  $F(s) = \int_0^\infty f(t)e^{-st}dt$ . Here is an example of a function defined on intervals:

$$f(x) = \begin{cases} x, & x \geq 0 \\ -x, & x < 0 \end{cases} \quad (5)$$

Note how the `array` environment is delimited.