

System of equations

Grouping and centering equations with *gather* (numbered)

$$x + 2y - z = 4 \tag{1}$$

$$x + y - 5z = -1 \tag{2}$$

$$2x - z = 10 \tag{3}$$

In addition, the environment *gathered* can be used in another mathematical environment.

Grouping and centering equations with *gather* (unnumbered)

$$x + 2y - z = 4$$

$$x + y - 5z = -1$$

$$2x - z = 10$$

System with *align* (numbered)

$$x + 2y - z = 4 \tag{4}$$

$$x + y - 5z = -1 \tag{5}$$

$$2x - z = 10 \tag{6}$$

System with *align* (numbered) and *subequations*

$$x + 2y - z = 4 \tag{7a}$$

$$x + y - 5z = -1 \tag{7b}$$

$$2x - z = 10 \tag{7c}$$

System with *align** (unnumbered)

$$x + 2y - z = 4$$

$$x + y - 5z = -1$$

$$2x - z = 10$$

This environment can also be used to align equations on the same line:

$$\begin{array}{ll} f(x) = ax^2 + bx + c & g(x) = dx^3 \\ f'(x) = 2ax + b & g'(x) = 3dx^2 \end{array}$$

Braces with *aligned*

The environment *aligned* is similar to *align*, to be used inside another mathematics environment.

$$\begin{aligned} \left(\begin{array}{l} x + 2y - z = 4 \\ x + y - 5z = -1 \\ 2x - z = 10 \end{array} \right) \\ \left\{ \begin{array}{l} x + 2y - z = 4 \\ x + y - 5z = -1 \\ 2x - z = 10 \end{array} \right. \end{aligned}$$

System with *array*

The environment *array* is for more advanced scenario. It is basically the same as *align*, but the columns and their alignment are explicitly indicated. It must be used in the math mode.

$$\left\{ \begin{array}{rcl} x + z & = & y - 4 \\ 5z & = & x + y - 1 \\ 2x - y & = & 10 - y \end{array} \right.$$

Displaying long equations

The environment *multline* can be used to display formula on multiple lines.

$$\begin{aligned} f(x) = 60x^{15} + 56x^{14} + 52x^{13} + 48x^{12} + 44x^{11} + 40x^{10} + 36x^9 + 32x^8 \\ + 28x^7 + 24x^6 + 20x^5 + 16x^4 + 12x^3 + 8x^2 + 4 \end{aligned}$$