Sebastian's math test

The default math mode font is *Math Italic*. This should not be confused with ordinary *Text Italic* – notice the different spacing! `\mathbf` produces bold roman letters: **abcABC**. If you wish to embolden complete formulas, use the `\boldmath` command *before* going into math mode. This changes the default math fonts to bold.

`normal` $x = 2\pi \Rightarrow x \simeq 6.28$

`mathbf` $\mathbf{x} = 2\pi \Rightarrow \mathbf{x} \simeq 6.28$

`boldmath` $\boldsymbol{x = 2\pi \Rightarrow x \simeq 6.28}$

Greek is available in upper and lower case: $\alpha, \beta \ldots \Omega$, and there are special symbols such as $\hbar$. The following letters should be upright: $\Gamma, \Delta \ldots \Omega$. Digits in formulas $1, 2, 3 \ldots$ may differ from those in text: 4, 5, 6...

There is a calligraphic alphabet `\mathcal` for upper case letters $\mathcal{ABCDE} \ldots$, and there are letters for number sets: $\mathbb{A} \ldots \mathbb{Z}$, which are produced using `\mathbb`.

$$\sigma(t) = \frac{1}{\sqrt{2\pi}} \int_0^t e^{-x^2/2} dx \tag{1}$$

$$\prod_{j \geq 0} \left(\sum_{k \geq 0} a_{jk} z^k \right) = \sum_{k \geq 0} z^n \left(\sum_{\substack{k_0, k_1, \ldots \geq 0 \\ k_0 + k_1 + \ldots = n}} a_0 k_0 a_{1k_1} \ldots \right) \tag{2}$$

$$\pi(n) = \sum_{m=2}^{n} \left\lfloor \left(\sum_{k=1}^{m-1} \lfloor (m/k) / \lceil m/k \rceil \rfloor \right)^{-1} \right\rfloor \tag{3}$$

$$\underbrace{\{\overbrace{a, \ldots, a}^{k\ a's}, \overbrace{b, \ldots, b}^{l\ b's}\}}_{k+l \text{ elements}} \tag{4}$$

$$\mathrm{W}^+ \begin{array}{l} \nearrow \mu^+ + \nu_\mu \\ \rightarrow \pi^+ + \pi^0 \\ \rightarrow \kappa^+ + \pi^0 \\ \searrow \mathrm{e}^+ + \nu_\mathrm{e} \end{array}$$

$$\frac{\pm \begin{vmatrix} x_1 - x_2 & y_1 - y_2 & z_1 - z_2 \\ l_1 & m_1 & n_1 \\ l_2 & m_2 & n_2 \end{vmatrix}}{\sqrt{\begin{vmatrix} l_1 & m_1 \\ l_2 & m_2 \end{vmatrix}^2 + \begin{vmatrix} m_1 & n_1 \\ n_1 & l_1 \end{vmatrix}^2 + \begin{vmatrix} m_2 & n_2 \\ n_2 & l_2 \end{vmatrix}^2}}$$

Mathematical accents:

acute=$\acute{a}$ grave=$\grave{a}$ ddot=$\ddot{a}$ tilde=$\tilde{a}$ bar=$\bar{a}$ breve=$\breve{a}$ check=$\check{a}$ hat=$\hat{a}$ vec=$\vec{a}$ dot=$\dot{a}$