

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

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

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

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

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

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

$$\underbrace{\overbrace{a, \dots, a}^{k \ a' \ s} , \overbrace{b, \dots, b}^{l \ b' \ s}}_{k+l \text{ elements}} \quad (4)$$

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

$$\pm \frac{\left| \begin{array}{ccc} x_1 - x_2 & y_1 - y_2 & z_1 - z_2 \\ l_1 & m_1 & n_1 \\ l_2 & m_2 & n_2 \end{array} \right|}{\sqrt{\left| \begin{array}{cc} l_1 & m_1 \\ l_2 & m_2 \end{array} \right|^2 + \left| \begin{array}{cc} m_1 & n_1 \\ n_1 & l_1 \end{array} \right|^2 + \left| \begin{array}{cc} m_2 & n_2 \\ n_2 & l_2 \end{array} \right|^2}}$$

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= $\dot{a}$