3 Mathematics Typing

3.1 Mathmode

A sentence with inline mathematics: $y = mx + c$.

3 Mathematics Typing

A second sentence with inline mathematics: $5^2 = 3^2 + 4^2$. A second paragraph containing display math.

$$y = mx + c$$

See how the paragraph continues after the display.

Superscripts a^2 and subscripts a_2.

Some mathematics: $y = 2 \sin \theta^2$.

3.1.2 Display mathematics

A paragraph about a larger equation

$$\int_{-\infty}^{+\infty} e^{-x^2}\,dx$$

A paragraph about a larger equation

$$\int_{-\infty}^{+\infty} e^{-x^2}\,dx$$

A paragraph about a larger equation

$$\int_{-\infty}^{+\infty} e^{-x^2}\,dx \tag{1}$$

Theamsmathpackage

$$Q_{n,0} = 1 \quad Q_{0,k} = [k = 0];$$
$$Q_{n,k} = Q_{n-1,k} + Q_{n-1,k-1} + \binom{n}{k}, \quad \text{for } n,\, k > 0.$$

AMS matrices.

$$\begin{matrix} a & b & c \\ d & e & f \end{matrix} \quad \begin{pmatrix} a & b & c \\ d & e & f \end{pmatrix} \quad \begin{bmatrix} a & b & c \\ d & e & f \end{bmatrix}$$

3.3 Fontsinmathmode

- roman(upright)
- *italicspacedas‘text′*
- **boldface**
- sansserif

- monospaced(typewriter)
- $\mathbb{ABC}$

The matrix $\mathbf{M}$.
bad use $size \neq size \neq \text{size}$
bad use $size \neq size \neq \text{size}$

3.4 Further amsmath alignments

Gather

$$P(x) = ax^5 + bx^4 + cx^3 + dx^2 + ex + f \tag{2}$$

$$x^2 + x = 10 \tag{3}$$

Multline

$$(a+b+c+d)x^5 + (b+c+d+e)x^4 + (c+d+e+f)x^3 + (d+e+f+a)x^2 + (e+f+a+b)x + (f+a+b+c)$$

3.4.1 Columns in math alignments

Aligned equations

$$\begin{aligned} a &= b+1 & c &= d+2 & e &= f+3 \\ r &= s^2 & t &= u^3 & v &= w^4 \end{aligned}$$

- $\begin{aligned} a &= b \\ c &= d \end{aligned}$
- $\begin{aligned} a &= b \\ c &= d \end{aligned}$

3.5 Bold Math

$(x+y)(x-y) = x^2-y^2$ $\boldsymbol{(x+y)(x-y) = x^2-y^2}$ $\boldsymbol{\pi r^2}$ $(x+\mathbf{y})(x-\mathbf{y}) = x^2-\mathbf{y}^2$ πr^2

$(x+\mathbf{y})(x-\mathbf{y}) = x^2-\mathbf{y}^2$ $(x+\boldsymbol{y})(x-\boldsymbol{y}) = x^2-\boldsymbol{y}^2$ $\alpha+\boldsymbol{\alpha} < \beta+\boldsymbol{\beta}$

3.6 Mathtools

$$\begin{pmatrix} 10 & 11 \\ 1 & 2 \\ -5 & -6 \end{pmatrix}$$

Greek letters

- π
- θ
- β
- ξ
- Λ
- Δ
- Ψ
- Δ