# 1 Math enviornments

## Inline elements

1. using `\$...\$`): $a + b = c$
2. using `\[...\]`): $a/b = c$
3. using environment `\begin{math}...\end{math}`): $a - b = c$

## Blocked elements

1. using `$$...$$`:
$$\frac{a}{b} = c$$
2. using `\[...\]`:
$$\int_b^a = c$$
3. using enviornment `\begin{displaymath}...\end{displaymath}`:
$$\frac{\partial a}{\partial b} = c$$

## Alignments & numberings

1. Numbered equations
$$\mathrm{KE} = 1/2mv^2 \tag{1}$$
2. No numbered equations ( trick, similar to section numberings)
$$\mathrm{PE} = \int_{\mathrm{ref}}^{x} F \, \mathrm{d}\overrightarrow{x}$$
3. Numbered equations (not aligned)
$$\exp^{ix} = \cos x + i \sin(x) \tag{2}$$
$$\exp^{i\pi} + 1 = 0 \tag{3}$$

4. Numbered and aligned

$$\nabla \cdot \vec{D} = \rho_v \tag{4}$$
$$\nabla \cdot \vec{B} = 0 \tag{5}$$
$$\nabla \times \vec{E} = -\frac{\partial B}{\partial t} \tag{6}$$
$$\nabla \times \vec{B} = \mu_0 \vec{J} + \mu_0 \epsilon_0 \frac{\partial E}{\partial t} \tag{7}$$

5. Controlling numbering and alignment

$$\nabla \cdot \vec{D} = \rho_v$$
$$\nabla \cdot \vec{B} = 0 \tag{8}$$
$$\nabla \times \vec{E} = -\frac{\partial B}{\partial t} \tag{9}$$
$$\nabla \times \vec{B} = \mu_0 \vec{J} + \mu_0 \epsilon_0 \frac{\partial E}{\partial t}$$

# 2 Symbols

## Greek symbols

Note that greek symbols that can be represented by english letters such as `\Alpha` and `\Chi` do not exists, as their symbols $A$ and $X$ are indistinguishable from using letters `$A$` and `$X$`. However, some packages override this behavior, so please check what math packages you import.

$$\alpha, A, \beta, B, \gamma, \Gamma, \delta, \Delta ... \mu, \nu$$

## Equation symbols (typically used for legends or referring to diagrams)

# 3 Spacing