LaTeX eBook

IN Examples

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Contents

1 Math Tips

1.1 Auto-resizing equation

$$\dot{\rho} = \frac{x^3}{45a^9 - 23b}$$

```
\documentclass{article}
\usepackage{amsmath}
\usepackage{graphicx}

\begin{document}
\begin{equation*}\label{eq1}
\resizebox{.4\textwidth}{!}{ % change .4 to 0.5...
$\dot{\rho}=\dfrac{x^3}{45a^9-23b}$}
\end{equation*}
\end{document}
```

1.2 Form for simplest calculation

Fill with number
if it does't work try another PDF viewer

a:

b:

c:

$\sum =$ 0

```
\documentclass{article}
\usepackage{hyperref}

\begin{document}
\newcommand{\sss}[1]{this.getField("#1").value}
\begin{Form}
\noindent%
Fill with number\\

\TextField[name=a]{a:} \\

\TextField[name=b]{b:} \\

\TextField[name=c]{c:} \\
\noindent%
$\sum = $ \TextField[name=AvgStat, calculate={
  event.value = (
    \sss{a} +
    \sss{b} +
    \sss{c}) ;
}, readonly, value=0]{}
\end{Form}
\end{document}
```

1.3 Equation in the form of steps

$$\frac{n_0}{n_1} = q_1 + \frac{1}{q_2 + \dfrac{1}{q_3 + \dfrac{1}{q_4 + \ddots + \dfrac{1}{q_{k-1} + \dfrac{1}{q_k}}}}}$$

```
\documentclass{article}
\usepackage{amsmath}
\def\mywd{35pt}

\begin{document}
\[
  \frac{n_0}{n_1} = q_1 + \dfrac{\makebox[\mywd][l]{
      ↪ $1$}}
  {\makebox[\mywd][l]{$q_2 + \dfrac{\makebox[\mywd][l
      ↪ ]{$1$}}
  {\makebox[\mywd][l]{$q_3 + \dfrac{\makebox[\mywd][l
      ↪ ]{$1$}}
  {\makebox[\mywd][l]{$q_4 +
   \raisebox{-6pt}{$\ddots$}
   \raisebox{-12pt}{+$\dfrac{\makebox[\mywd][l]{$1\
       ↪ kern30pt$}}
  {q_{k-1} + \dfrac{1}
  {q_k}}$}$}}$}}$}}
\]
\end{document}
```

1.4 One number for multiline equation

$$\begin{aligned} x_{ij} &= d_{ijk}E_k, \\ x_{ij} &= \varsigma_{ijk}H_k, \\ x_{ij} &= s_{ijkl}X_{kl}, \\ x_{ij} &= \xi_{ij}\delta p, \\ x_{ij} &= \alpha_{ij}\delta T \end{aligned} \tag{1}$$

```
\documentclass{article}
\usepackage{amsmath}

\begin{document}
\begin{equation}
\begin{aligned}
x_{ij} &= d_{ijk}E_k, \\
x_{ij} &= \varsigma_{ijk}H_k,\\
x_{ij} &= s_{ijkl}X_{kl},\\
x_{ij} &= \xi_{ij}\delta p,\\
x_{ij} &= \alpha_{ij}\delta T
\end{aligned}
\end{equation}
\end{document}
```

1.5 Matrix in standalone documentclass

$$\begin{matrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{matrix}$$

```
\documentclass[preview,border={-5cm 0cm -5cm -0.1cm}]{
    ↪ standalone}
\usepackage{amsmath}

\begin{document}
\begin{equation*}
\begin{matrix}
a_{11} & a_{12} & a_{13} \\
a_{21} & a_{22} & a_{23} \\
a_{31} & a_{32} & a_{33} \\
\end{matrix}
\end{equation*}
\end{document}
```

1.6 Multiple lines, one centered label

$$\begin{aligned} A &= \frac{\pi r^2}{2} \\ &= \frac{1}{2}\pi r^2 \end{aligned} \tag{2}$$

```
\begin{equation} \label{eq1}
\begin{split}
A & = \frac{\pi r^2}{2} \\
 & = \frac{1}{2} \pi r^2
\end{split}
\end{equation}
```

1.7 Array as a fraction

$$I - IV - V^{\substack{6-4\\4-3\\6-4\\4-3}} - I - cadence$$

$$I - IV - V^{\genfrac{}{}{0pt}{}{6-4}{4-3}} - I - cadence$$

$$I - IV - V^{\begin{array}{c}6-4\\4-3\end{array}} - I - cadence$$

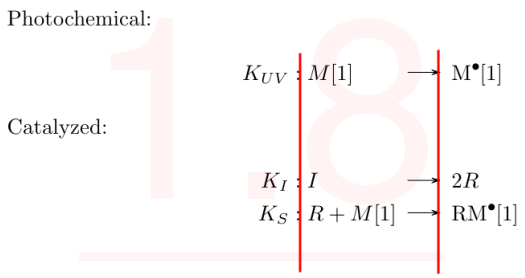
```
\documentclass{article}
\usepackage{amsmath}

\begin{document}
$I-IV-V^{\substack{6-4\\4-3\\6-4\\4-3}}-I-cadence$ \\

$I-IV-V^{\genfrac{}{}{0pt}{}{6-4}{4-3}}-I-cadence$ \\

$I-IV-V^{\begin{array}{c}6-4\\4-3\end{array}}-I-
    ↪ cadence$
\end{document}
```

1.8 Aligning equations inbetween text




```
\documentclass{article}
\usepackage{amsmath}

\begin{document}
\begin{alignat*}{2}
\intertext{Photochemical:}
K_{UV} &: M[1]& &\ch{-> M^{*}}[1]
\intertext{Catalyzed:}
K_I &: I& &\ch{->} 2R \\
K_S &: R + M [1]& &\ch{-> RM^{*}}[1]
\end{alignat*}
\end{document}
```

1.9 Equation: boxed split inside align

```
\documentclass{standalone}
\usepackage{amsmath}
\usepackage{hf-tikz}
\begin{document}
\begin{align}
A ={}& B + C + D \notag \\
\begin{split}
\tikzmarkin{thisbox}
A ={}& \phantom{{}+{}} B\_is\_long\\
& + C\_is\_long\_too\\
& + D\_is\_long\_too\tikzmarkend{thisbox}
\end{split}
\end{align}
\end{document}
```