Mathematics in R Markdown

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Math inside RMarkdown

In side a text chunk, you can use mathematical notation if you surround it by dollar signs `$` for â€œinline mathematicsâ€ and `$$` for â€œdisplayed equationsâ€. **Do not leave a space between the `$` and your mathematical notation**.

Example: `$\sum_{n=1}^{10} n^2$` is rendered as $\sum_{n=1}^{10} n^2$.

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The mathematical typesetting is based on LaTeX, so if you need to search for the way to make a particular symbol, include `latex` in your search. But note: Not all LaTeX macros are available without using additional packages, and those packages likely will only work if you are creating a PDF. On the plus side, if you are working in PDF, you can use additional packages that give much better control and/or easier syntax.

In LaTeX,

- macros begin with a backslash (`\`)
- curly braces (`{` and `}`) are used to surround items that are to be considered as one object from LaTeXâ€™s perspective.
  Without them, usually the next letter or digit will be used, but that isnâ€™t usually what you want. For example `$$\sum_x=1^10 x^2$$` produces

$$\sum_x = 1^1 0x^2$$

Mathematical Notation

Here are some common mathematical things you might use in statistics

$x = y$	`$x = y $`
$x < y$	`$x < y $`
$x > y$	`$x > y $`
$x \le y$	`$x \le y $`
$x \ge y$	`$x \ge y $`
x^n	`$x^{n}$`

x_n	`$x_{n}$`
$\overline{x}$	`$\overline{x}$`
$\hat{x}$	`$\hat{x}$`
$\tilde{x}$	`$\tilde{x}$`
$\frac{a}{b}$	`$\frac{a}{b}$`
$\frac{\partial f}{\partial x}$	`$\frac{a}{b}$`
$\displaystyle \frac{\partial f}{\partial x}$	`$\displaystyle \frac{a}{b}$`
$\binom{n}{k}$	`$\binom{n}{k}$`
$x_1 + x_2 + \cdots + x_n$	`$x_{1} + x_{2} + \cdots + x_{n}$`
$x_1, x_2, \dots, x_n$	`$x_{1}, x_{2}, \dots, x_{n}$`
$\mathbf{x} = \langle x_1, x_2, \dots, x_n \rangle$	`\mathbf{x} = \langle x_{1}, x_{2}, \dots, x_{n}\rangle$` (`\bm` from the `bm` pacakge would be better)
$x \in A$	`$x \in A$`
$\lvert A \rvert$	`$\|A\|$`
$x \in A$	`$x \in A$`
$A \subset B$	`$x \subset B$`
$A \subseteq B$	`$x \subseteq B$`
$A \cup B$	`$A \cup B$`
$A \cap B$	`$A \cap B$`
$X \sim \mathsf{Binom}(n, \pi)$	`$X \sim {\sf Binom}(n, \pi)$` (`sf` for â€œslide fontâ€
$\mathrm{P}(X \le x) = \mathtt{pbinom}(x, n, \pi)$	`$\mathrm{P}(X \le x) = {\tt pbinom}(x, n, \pi)$` (`tt` for â€œtypewriter typeâ€)
$P(A \mid B)$	`$P(A \mid B)$`
$\mathrm{P}(A \mid B)$	`$\mathrm{P}(A \mid B)$` (`mathrm` for â€œmath roman fontâ€
$\{1, 2, 3\}$	`$\{1, 2, 3\}$`
$\sin(x)$	`$\sin(x)$`
$\log(x)$	`$\log(x)$`
$\int_a^b$	`$\int_{a}^{b}$`
$\left(\int_a^b f(x) \; dx\right)$	`$\left(\int_{a}^{b} f(x) \; dx\right)$`
$\left[\int_{-\infty}^{\infty} f(x) \; dx\right]$	`$\left[\int_{-\infty}^{\infty} f(x) \; dx\right]$`
$F(x)\Big\rvert_a^b$	`$\left. F(x) \right\|_{a}^{b}$`

$\sum_{x=a}^{b} f(x)$	`$\sum_{x = a}^{b} f(x)$`
$\prod_{x=a}^{b} f(x)$	`$\prod_{x = a}^{b} f(x)$`
$\lim_{x \to \infty} f(x)$	`$\lim_{x \to \infty} f(x)$`
$\displaystyle \lim_{x \to \infty} f(x)$	`$\displaystyle \lim_{x \to \infty} f(x)$`

Greek Letters

αA	`$\alpha A$`	νN	`$\nu N$`
βB	`$\beta B$`	$\xi \Xi$	`$\xi\Xi$`
$\gamma \Gamma$	`$\gamma \Gamma$`	oO	`$o O$` (omicron)
$\delta \Delta$	`$\delta \Delta$`	$\pi \Pi$	`$\pi \Pi$`
$\epsilon \varepsilon E$	`$\epsilon \varepsilon E$`	$\rho \varrho P$	`$\rho\varrho P$`
ζZ	`$\zeta Z \sigma \,\!$`	Σ	`$\sigma \Sigma$`
ηH	`$\eta H$`	τT	`$\tau T$`
$\theta \vartheta \Theta$	`$\theta \vartheta \Theta$`	$\upsilon \Upsilon$	`$\upsilon \Upsilon$`
ιI	`$\iota I$`	$\phi \varphi \Phi$	`$\phi \varphi \Phi$`
κK	`$\kappa K$`	χX	`$\chi X$`
$\lambda \Lambda$	`$\lambda \Lambda$`	$\psi \Psi$	`$\psi \Psi$`
μM	`$\mu M$`	$\omega \Omega$	`$\omega \Omega$`