

☞ `\over`  
`\atop`  
`\above` *<dimen>*  
`\choose`  
`\brace`  
`\brack`

These commands stack one subformula on top of another one. We will explain how `\over` works, and then relate the other commands to it.

`\over` is the command that you’d normally use to produce a fraction. If you write something in one of the following forms:

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$$\begin{aligned}
& \text{\texttt{\$}\texttt{\$}\texttt{\langle formula_1 \rangle}\texttt{\over}\texttt{\langle formula_2 \rangle}\texttt{\$}\texttt{\$}} \\
& \text{\texttt{\$}\texttt{\langle formula_1 \rangle}\texttt{\over}\texttt{\langle formula_2 \rangle}\texttt{\$}} \\
& \text{\texttt{\left\langle delim \rangle}\texttt{\langle formula_1 \rangle}\texttt{\over}\texttt{\langle formula_2 \rangle}\texttt{\right\langle delim \rangle}} \\
& \text{\texttt{\{ \langle formula_1 \rangle}\texttt{\over}\texttt{\langle formula_2 \rangle}\texttt{\}}}
\end{aligned}$$


```

you’ll get a fraction with numerator *<formula<sub>1</sub>>* and denominator *<formula<sub>2</sub>>*, i.e., *<formula<sub>1</sub>>* over *<formula<sub>2</sub>>*. In the first three of these forms the `\over` is not implicitly contained in a group; it absorbs everything to its left and to its right until it comes to a boundary, namely, the beginning or end of a group.

You can’t use `\over` or any of the other commands in this group more than once in a formula. Thus a formula such as:

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$$\text{\texttt{\$}\texttt{\$}\texttt{a}\texttt{\over}\texttt{n}\texttt{\choose}\texttt{k}\texttt{\$}\texttt{\$}}$$

```

isn’t legal. This is not a severe restriction because you can always enclose one of the commands in braces. The reason for the restriction is that if you had two of these commands in a single formula, T<sub>E</sub>X wouldn’t know how to group them.

The other commands are similar to `\over`, with the following exceptions:

- `\atop` leaves out the fraction bar.
- `\above` provides a fraction bar of thickness *<dimen>*.
- `\choose` leaves out the fraction bar and encloses the construct in parentheses. (It’s called “choose” because  $\binom{n}{k}$  is the notation for the number of ways of choosing *k* things out of *n* things.)
- `\brace` leaves out the fraction bar and encloses the construct in braces.
- `\brack` leaves out the fraction bar and encloses the construct in brackets.

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*Example:*

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$$\begin{aligned}
& \text{\texttt{\$}\{n+1 \over n-1\}} && \text{\texttt{\quad \{n+1 \atop n-1\} \quad}} \\
& \text{\texttt{\{n+1 \above 2pt n-1\}}} && \text{\texttt{\quad \{n+1 \choose n-1\} \quad}} \\
& \text{\texttt{\{n+1 \brace n-1\}}} && \text{\texttt{\quad \{n+1 \brack n-1\}\$}}
\end{aligned}$$

```

*produces:*

$$\frac{n+1}{n-1} \qquad n+1 \qquad \frac{n+1}{n-1} \qquad \binom{n+1}{n-1} \qquad \left\{ \begin{matrix} n+1 \\ n-1 \end{matrix} \right\} \qquad \left[ \begin{matrix} n+1 \\ n-1 \end{matrix} \right]$$