

```
\eqalign { \langle line \rangle \cr ... \langle line \rangle \cr }
\eqalignno { \langle line \rangle \cr ... \langle line \rangle \cr }
\leqalignno { \langle line \rangle \cr ... \langle line \rangle \cr }
```

These commands produce a multiline math display in which certain corresponding parts of the lines are lined up vertically. The `\eqalignno` and `\leqalignno` commands also let you provide equation numbers for some or all of the lines. `\eqalignno` puts the equation numbers on the right and `\leqalignno` puts them on the left.

Each line in the display is ended by `\cr`. Each of the parts to be aligned (most often an equals sign) is preceded by ‘&’. An ‘&’ also precedes each equation number, which comes at the end of a line. You can put more than one of these commands in a single display in order to produce several groups of equations. In this case, only the rightmost or leftmost group can be produced by `\eqalignno` or `\leqalignno`.

You can use the `\noalign` command (p. ‘`\noalign`’) to change the amount of space between two lines of a multiline display.

Example:

```
$$\left\{\begin{array}{l} \eqalign{f_1(t) \&= 2t\cr f_2(t) \&= t^3\cr f_3(t) \&= t^2-1\cr}\right\} \\ \left\{\begin{array}{l} \eqalign{g_1(t) \&= t\cr g_2(t) \&= 1\cr}\right\}$$
```

produces:

$$\left\{ \begin{array}{l} f_1(t) = 2t \\ f_2(t) = t^3 \\ f_3(t) = t^2 - 1 \end{array} \right\} \left\{ \begin{array}{l} g_1(t) = t \\ g_2(t) = 1 \end{array} \right\}$$

Example:

```
$$\eqalignno{\sigma^2\&=E(x-\mu)^2\&(12)\cr
\&=\{1\over n\}\sum_{i=0}^n(x_i-\mu)^2\cr
\&=E(x^2)-\mu^2\cr}$$
```

produces:

$$\begin{aligned} \sigma^2 &= E(x - \mu)^2 \\ &= \frac{1}{n} \sum_{i=0}^n (x_i - \mu)^2 \\ &= E(x^2) - \mu^2 \end{aligned} \tag{12}$$

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Example:

```


$$\begin{aligned} \sigma^2 &= E(x - \mu)^2 \\ &= E(x^2) - \mu^2 \end{aligned}$$


```

produces:

$$\begin{aligned} (6) \qquad \qquad \qquad \sigma^2 &= E(x - \mu)^2 \\ (7) \qquad \qquad \qquad &= E(x^2) - \mu^2 \end{aligned}$$

Example:

```


$$\begin{aligned} (x+a)^2 &= x^2 + 2ax + a^2 \\ (x+a)(x-a) &= x^2 - a^2 \end{aligned}$$

% same effect as \displaylines but with an equation number

```

produces:

$$\begin{aligned} (x+a)^2 &= x^2 + 2ax + a^2 \\ (x+a)(x-a) &= x^2 - a^2 \end{aligned} \tag{19}$$