Plain aligns

$$A =B \tag{1}$$
$$C =D \tag{2}$$
$$\tag{3}$$

$$A =B \tag{4}$$
$$C =D \tag{5}$$
$$+ E$$

Equations (6) and (7):

$$x \quad c_1, \tag{6}$$

and

$$y \quad c_2, \tag{7}$$

Aligned within math

$$A =B$$

Tendency to see the ampersand before aligned has started

$$C = \{D$$

Align with aligned

$$AB$$
$$C \{D$$

$$A = \begin{cases} B\text{if} \\ C\text{otherwise} \end{cases} \tag{8}$$

Or even

$$\begin{matrix} a \\ b \end{matrix} \tag{9}$$

Equation with split; Ampersand before relation

$$\begin{aligned} C &= D \\ &+ E \end{aligned} \tag{10}$$

or after

$$\begin{aligned} C &=D \\ &+ E \end{aligned} \tag{11}$$

Gather with split

$$A = B \tag{12}$$
$$\begin{aligned} C &= D \\ &\quad + E \end{aligned} \tag{13}$$
$$F = G \tag{14}$$

Align with split. Notice that the split acts like a column pair in the align.

$$A = B \tag{15}$$
$$\begin{aligned} C &= D \\ &\quad + E \end{aligned} \tag{16}$$
$$F = G \tag{17}$$
$$H = I \tag{18}$$

$$A = B \tag{19}$$
$$B = - C \tag{20}$$
$$\begin{aligned} C &= - D + E + F + G + H \\ &\quad + I \end{aligned} \tag{21}$$

2-Column align, with missing columns

$$A = B \qquad C = D \tag{22}$$
$$E = F \tag{23}$$
$$H = I \qquad J = K \tag{24}$$

2-Column align with split; Note that you should omit double slash from last line of split!

$$A = B \qquad C = D \tag{25}$$
$$\begin{aligned} E &= F \\ &\quad + G \end{aligned} \tag{26}$$
$$H = I \qquad J = K \tag{27}$$

$$A = B \qquad C = D \tag{28}$$
$$X = Y \qquad \begin{aligned} E &= F \\ &\quad + G \end{aligned} \tag{29}$$
$$H = I \qquad J = K \tag{30}$$
$$\begin{aligned} L &= M \\ &\quad + N \end{aligned} \qquad O = P \tag{31}$$
$$Q = R \qquad S = T \tag{32}$$

Multiple splits in multicolumn align. Note how each split block contributes to a single row, but it is horizontally aligned as if it were a column pair in the align.

$$A = B + b + c + d \qquad C = D \tag{33}$$

$$\begin{aligned} E + e + f + g &= F \\ &\quad + G \end{aligned} \qquad \begin{aligned} L &= M \\ &\quad + N \\ &\quad + Z \end{aligned} \tag{34}$$

$$Q = R \qquad S = T \tag{35}$$