1 Prime equation numbers

First an equation.

\[ A = B \] \hfill (1.1)

That was equation (1.1).

Then the same, with a prime on the number.

\[ C = D \] \hfill (1.1')

And that was equation (1.1').

Notice, by the way, that when a \texttt{ref} occurs inside a \texttt{tag}, and that \texttt{tag} is then \texttt{label}’d, a \texttt{ref} for the the second \texttt{label} requires three runs of \LaTeX in order to get the proper value. (If you run through the logic of \LaTeX’s cross-referencing mechanisms as they apply in this case, you will see that this is necessary.)

2 Subnumbered equations

Here is \(a,b,c\) sub-numbering.

\[ A = B \] \hfill (2.1a)
\[ D = C \] \hfill (2.1b)
\[ E = F \] \hfill (2.1c)

That was produced with the \texttt{eqnarray} environment; the middle line was labeled as (2.1b).

An equation following the end of the \texttt{subequations} environment should revert to normal numbering:

\[ H < K \] \hfill (2.2)

A check on the labeling: that was equation (2.2).

The sub-numbered equations can be spread out through the text, like this:

\[ A = B \] \hfill (2.3a)

The \texttt{subequations} environment can span arbitrary text between subsidiary equations. The only restriction is that if there are any numbered equations inside the \texttt{subequations} environment that break out of the subequation numbering sequence, they would have to be handled specially.

\[ D = C \] \hfill (2.3b)

More arbitrary text.

\[ E = F \] \hfill (2.3c)
Label check: the middle one was (2.3b)
     A final equation for a numbering check.

\[ G = H \quad (2.4) \]

That equation was labeled as (2.4).

3 Tests of align, gather, and other AMS-\LaTeX environments

The align environment:

\begin{align*}
A + B & = B + A \quad (3.1a) \\
C & = D + E \quad (3.1b) \\
E & = F \quad (3.1c)
\end{align*}

Label check: that was (3.1a), (3.1b), and (3.1c).

The align environment again:

\begin{align*}
A + B & = B & B = B + A \quad (3.2a) \\
C & = D + E & C \oplus D = E \quad (3.2b) \\
E & = F & E' = F' \quad (3.2c)
\end{align*}

Label check: that was (3.2a), (3.2b), and (3.2c).

The gather environment. For the third line we refer to one of the numbers in the first align structure.

\begin{align*}
A + B & = B \quad (3.3a) \\
C & = D + E \quad (3.3b) \\
E & = F \quad (3.1c')
\end{align*}

Label check: that was (3.3a), (3.3b), and (3.1c').

The next subequations environment encompasses two separate equations. A split environment:

\begin{align*}
A = B + C + F & \\
= G \quad (3.4a)
\end{align*}

and a multline environment:

\begin{align*}
A[B|C|D][E[F][G][H[I][J[K][L[M][N]]] = \\
H[I][J[K][L[M]][N][O][P][Q][R][S][T][U][V][W][X][Y][Z] \quad (3.4b)
\end{align*}

Label check: That was (3.4a) and (3.4b).