Mathematics

Numbering Equations

Chapters can contain *both* numbered and unnumbered equations. An equation should be numbered if it discussed in text. An equation is cited in text like so, Eq. (1.1), and is numbered "Chapter.Equation number":

$$a + b = c \tag{1.1}$$

Writing Equations

Fractions To keep equations as compact as possible, small fractions are usually "broken down" in solidus (/) form, especially if the equation does not contain integrals or summations, and can appear in-text.

However, do not mix built-up fractions and fractions with a solidus. Fractions with long numerators or denominators (five or more characters) should be left as built-up fractions for ease in reading, and should be broken out from the text.

Long equations are broken apart and continued for several lines. The continuing lines of a "broken" equation start with the connective math sign, such as "+".

Subscripts and Superscripts It is preferable to use several symbols in one layer of subscript rather than several layers. The same applies to superscripts. In any case, more than a two-layered sub- or superscript should not be used.

Choosing Font Styles

Bold Used only for vectors (do not use arrows or bars to indicate vectors).

Italic All variables and constants should be italic unless otherwise styled.

Roman The following are set in Roman text type:

- "sin", "cos", "tan", and all similar trigonometric and hyperbolic functions
- "log" for base 10 logarithms
- qualities such as "min", "max", "opt", ..., etc.
- "d" for derivative
- acronyms such as "AIC" for aerodynamic influence coefficients

Script AIAA uses a script $\mathscr{l}$ to denote natural logarithm. Distinguish the letter l (ell) from the number 1 in your manuscript (place a comment in MSWord or use a script font in TEX).