SOME ADVICE ON THE CORRECT USE OF MATH NOTATION

Golden Rule: As with any other language, a mathematical statement should make sense as is written.

[For example, suppose you write a line that only contains the expression

$$2x + 4$$

and nothing else. It would read exactly like an English sentence with a subject but no predicate. In general, it makes no sense. Sensible statements are, for example,

$2x + 4 = 0$.
The expression $2x + 4$ represents a linear function of x.
The term $2x + 4$ is positive for $x \geq -2$.

Common mistakes with relative corrections:

Don't write	If you mean	Because
$\ln 0 = -\infty$	$\lim_{x\to 0^+} \ln x = -\infty$	ln is not defined at 0
$2x = 4 = x = 2$	$2x = 4 \implies x = 2$	$2 \neq 4$
$2 - 1 \sin x$	$2(-1)\sin x$	$2 - \sin x \neq -2\sin x$
$f = 2$	$f(x) = 2$	f is a function, 2 is a number
$x^2 = 2x$	$\frac{dx^2}{dx} = 2x$	$x^2 \neq 2x$
$x^2 \to 2x$		you're not taking a limit in x
$\cancel{x}^2{}_{2x}$		that is not a simplification
$3\frac{1}{2}$	$\frac{7}{2}$	$3\,\frac{1}{2} = \frac{3}{2}$
$1, 2$	$(1, 2)$	$1, 2$ are numbers, $(1, 2)$ is a point in the plane
$2 \cdot -1$	$2(-1)$	a dot is easy to miss
$\ln(x = 2)$	$x = 2 \implies \ln x = \ln 2$	it doesn't make any sense
$D(f) \geq 0$	$D(f) = \{\text{x real} \mid x \geq 0\}$	a set can't be non-negative
$D(f) = \geq 0$		it doesn't make any sense
$D(f) = x \geq 0$		a set cannot equal a number
$2 \geq x \geq 3$	$x \leq 2$ or $x \geq 3$	$2 \geq 3$ is false