Mathematical Typesetting Guidelines

1. Mathematical variables should be italicized, but not common function names.
Good: Let $f(x) = \sin x$.
Bad: Let f(x) = sin x.
Bad: Let $f(x) = sin x$.

2. Highlight important expressions by placing them on a separate line, and number any such expressions that you will reference later (but only number when necessary). Do not place unimportant expressions on a separate line.

Good:
Let $m = \inf\{f(x) : x \in [a,b]\}$ and $M = \sup\{f(x) : x \in [a,b]\}$. Thus, $m \le f(x) \le M$ for all $x \in [a,b]$. Since $g(x) \ge 0$, the last inequality gives $mg(x) \le f(x)g(x) \le Mg(x)$ for all $x \in [a,b]$, so

$$m \int_a^b g \le \int_a^b fg \le M \int_a^b g. \tag{1}$$

A continuous function on a closed set attains its maximum and minimum values, so there exists x_1, $x_2 \in [a,b]$ such that $f(x_1) = m$ and $f(x_2) = M$. Inequality (1) then becomes ...

Good:
Let $f(x) = x^2$ and consider the function $g(x)$ defined by ...

Bad:
Let

$$f(x) = x^2$$

and consider the function $g(x)$ defined by ...

3. Generally, strings of equalities (or inequalities) taking up more than one line of text should be aligned with one equality (or inequality) per line. Note the word *generally*. Space considerations may necessitate the violation of this guideline. If you must break up an expression, do so at a natural place, normally after equal signs (or plus signs, etc.).

Acceptable (but could be improved, assuming adequate space is available):
Therefore, $U(f,P_n) - L(f,P_n) = \sum_{i=1}^{m_n} (M_i - m_i)\Delta x_i = \sum_{i \in A_n} (M_i - m_i)\Delta x_i + \sum_{i \in B_n} (M_i - m_i)\Delta x_i \le$ $0 + \sum_{i \in B_n} 2T\Delta x_i < \sum_{i \in B_n} 2T\frac{1}{4nkT}$.

Better:
Therefore,

$$\begin{aligned} U(f,P_n) - L(f,P_n) &= \sum_{i=1}^{m_n} (M_i - m_i)\Delta x_i \\ &= \sum_{i \in A_n} (M_i - m_i)\Delta x_i + \sum_{i \in B_n} (M_i - m_i)\Delta x_i \\ &\le 0 + \sum_{i \in B_n} 2T\Delta x_i \\ &< \sum_{i \in B_n} 2T\frac{1}{4nkT}. \end{aligned}$$

4. Try to phrase your presentation so that "natural blocks" of mathematics stay on the same line.

Acceptable:
Define the partition P by $P = P_1 \cup P_2$. Then $U(f,\, P) \leq U(f,\, P_1) < U(f) + \frac{\varepsilon}{2}$, and $U(g,\, P) \leq$
$U(g,\, P_2) < U(g) + \frac{\varepsilon}{2}$.

Better:
Let $P = P_1 \cup P_2$. Then $U(f,\, P) \leq U(f,\, P_1) < U(f) + \frac{\varepsilon}{2}$, and $U(g,\, P) \leq U(g,\, P_2) < U(g) + \frac{\varepsilon}{2}$.

5. Remember that mathematical exposition consists of *sentences*. Use good grammar and punctuation. For example, if a mathematical expression or symbol ends a sentence, there should be a period following the expression or symbol. While grammatically correct, it is stylistically not acceptable to *begin* sentences with symbols.

Bad:
B is compact, so every open cover has a finite subcover.

Good Alternatives (depending on the context of the problem):
The set B is compact, so every open cover has a finite subcover.

By hypothesis B is compact, so every open cover has a finite subcover.

Now, B is compact, so every open cover has a finite subcover.

Since B is compact every open cover has a finite subcover.

Because B is compact every open cover has a finite subcover.

6. Make sure the typesetting you've produced uses correct symbolism and is easy to read.

Bad:
Thus, it is clear that f’$(x) = 0$ for all $x < 0$. (The apostrophe used to indicate a derivative is not the same as the "prime" symbol, which should be used.)

So so:
Thus, it is clear that $f^{\,'}(x) = 0$ for all $x < 0$. (The "prime" symbol is a bit too high.)

Bad:
Thus, it is clear that $f'(x) = 0$ for all $x < 0$. (The "prime" symbol is too close to the "f.")

Good:
Thus, it is clear that $f\,'(x) = 0$ for all $x < 0$.

So so:
Let $\epsilon > 0$ be given. (The epsilon shown is not the standard mathematical font for that symbol.)

Good:
Let $\varepsilon > 0$ be given.

Bad:
Let $x \varepsilon A$. (Epsilon is not the proper symbol to use when indicating inclusion in a set.)

Good:
Let $x \in A$.

So so:
Consider the product $(\frac{x-y}{x+y} - 6)(\frac{1}{\sqrt{x^2+y^2}} + 7)$. (The parentheses are too small.)

Good:
Consider the product $\left(\frac{x-y}{x+y} - 6\right)\left(\frac{1}{\sqrt{x^2+y^2}} + 7\right)$.