MONROE COUNTY MATH LEAGUE QUESTION LINGO

1) **The word "compute" will always call for an answer in simplest form.**

   Thus answers like $\frac{6}{4}$, 5+2, $\frac{1}{\sqrt{2}}$, 2^5 and 2 sin 30°, for example, would not be satisfactory. In cases where there is question as to what is "most simplified," alternate answers may be accepted (ex: $\frac{3}{2}$ and $1\frac{1}{2}$ are both acceptable.) Note that no fraction may have a radical in its denominator. The judges' decision is final.

2) **When an answer is called for as an ordered pair (a,b), it must be given in precisely that form, including the parentheses and the comma.** The same applies for other choices of letters and for ordered n-tuples.

3) **The sides opposite vertices A, B, and C of triangle ABC will be represented by the lower case letters a, b, and c, respectively.**

   Depending on context, A can represent the vertex, or the angle, or the measure of the angle, and a can represent the side or its length. A similar convention holds for other choices of letters representing a triangle. If a quadrilateral is named MATH, it is understood that the vertices M, A, T, and H occur in this order around the polygon (either clockwise or counterclockwise). This convention holds for other choices of letters and for the naming of polygons in general. When referring to polygons (including triangles), we are referring to non-degenerate ones.

4) **Logs are base 10 unless otherwise indicated, and logarithms are only defined for positive real number arguments.**

5) **If complex numbers are used, the letter i will stand for $\sqrt{-1}$.**

6) **Some symbols of Combinations and Permutations:**

   $(\frac{n}{r}) = {}_nC_r = \dfrac{n!}{(n-r)!\,r!}$; this is the number of combinations of n things taken r at a time.

   ${}_nP_r = \dfrac{n!}{(n-r)!}$; this is the number of permutations of n things taken r at a time.   *Note: 0! = 1.*

7) **Divisors (or factors) of an integer refer to positive integer divisors only. Proper divisors of an integer are divisors that are less than the integer itself, and include 1.**

8) **The designation primes refers to positive primes only. Note: 1 is a unit, not a prime.**

9) **Sometimes problems refer to the digits of a number; in that case, those digits are usually underlined.**

   Examples: "Let N = .$\underline{7}\,\underline{7}\,\underline{7}$…$\underline{7}\,\underline{7}$, where the digit 7 occurs 100 times"; or "Find the missing digits A and B if

   K = $\underline{A}\,\underline{2}\,\underline{5}\,\underline{B}$ and K is a multiple of 72." [The number K is not to be interpreted as the product of A, 2, 5, and B.]

10) **If a diagram is given with a problem, it is not necessarily drawn to scale.**

11) **The word "simplify" will always imply a completely simplified answer.**

    For example, if a question asked to simplify $\sqrt{72}$, it would not be sufficient to write $2\sqrt{18}$ or $3\sqrt{8}$; the only acceptable answer would be $6\sqrt{2}$.

12) **The word "factor" will always imply a complete factoring.**

    For example, if a question asked to factor $x^4 - a^4$, it would not be sufficient to write $(x^2 + a^2)(x^2 - a^2)$; the only acceptable answer would be $(x^2 + a^2)(x - a)(x + a)$.

13) **Unless specified in the question, all numerical answers should be exact.**

    This is especially important in categories dealing with exponential, logarithmic, or trigonometric functions. No amount of decimal places will suffice if the exact answer is ln 2, $\frac{\pi}{2}$, or e^2 .