Forms of Answers

The following list explains acceptable forms for answers for MATHCOUNTS competitions. Coaches should ensure that mathletes are familiar with these rules prior to participating at any level of competition. Judges will score competition answers in compliance with these rules for forms of answers.

All answers must be expressed in simplest form. A "common fraction" is to be considered a fraction in the form $\pm\frac{a}{b}$, where a and b are natural numbers, and GCF(a,b) = 1. In some cases the term "common fraction" is to be considered a fraction in the form $\frac{A}{B}$, where A and B are algebraic expressions, and A and B do not share a common factor. A simplified "mixed number" ("mixed numeral," "mixed fraction") is to be considered a fraction in the form $\pm N\frac{a}{b}$, where N, a, and b are natural numbers, $a < b$, and GCF(a,b) = 1. Examples:

Problem: Express 8 divided by 12 as a common fraction.   *Answer:* $\frac{2}{3}$ *Unacceptable:* $\frac{4}{6}$, $\frac{8}{12}$

Problem: Express 12 divided by 8 as a common fraction.   *Answer:* $\frac{3}{2}$ *Unacceptable:* $\frac{6}{4}$, $\frac{12}{8}$

Problem: Express the sum of the lengths of the radius and the circumference of a circle with a diameter of $\frac{1}{4}$ as a common fraction in terms of π.   *Answer:* $\frac{1+2\pi}{8}$

Problem: Express 20 divided by 12 as a mixed number.   *Answer:* $1\frac{2}{3}$ *Unacceptable:* $1\frac{8}{12}$, $\frac{5}{3}$

Ratios should be expressed as simplified common fractions, unless otherwise specified. Examples:

Simplified, Acceptable Forms: $\frac{7}{2}$, $\frac{3}{\pi}$, $\frac{4-\pi}{6}$ *Unacceptable:* $3\frac{1}{2}$, $\frac{\frac{1}{4}}{3}$, 3.5, 2:1

Radicals must be simplified. A simplified radical must satisfy the following conditions: 1) no radicands have perfect square factors other than one; 2) no radicands contain fractions; and 3) no radicals appear in the denominator of a fraction. Numbers with fractional exponents are *not* in radical form. Examples:
Problem: Evaluate $\sqrt{15}$ x $\sqrt{5}$.   *Answer:* $5\sqrt{3}$ *Unacceptable:* $\sqrt{75}$

Answers to problems asking for a response in the form of a dollar amount or an unspecified monetary unit (e.g. "How many dollars...," "What is the amount of interest...") should be expressed in the form ($) *a.bc*, where *a* is an integer and *b* and *c* are digits. The *only* exceptions to this rule are when *a* is zero, in which case it may be omitted, or when *b* and *c* are both zero, in which case they may both be omitted. Examples:
Acceptable: 2.35, 0.38, .38, 5.00, 5   *Unacceptable:* 4.9, 8.0

Units of measurement are generally not required in answers, but must be correct if given. When a problem asks for an answer expressed in a specific unit of measure, equivalent answers expressed in other units are not acceptable. For example, if a problem asks for the number of ounces and 36 oz is the correct answer, 2 lbs 4 oz will not be accepted. Similarly, if a problem asks for the number of cents and 25 cents is the correct answer, $0.25 will not be accepted.

Do not make approximations for numbers (e.g., π, $\frac{2}{3}$, $\sqrt{5}$) in the data given or in solutions, unless the problem says to do so.

Do not do any intermediate rounding (other than the "rounding" a calculator performs) when calculating solutions. All rounding should be done at the end of the calculation process.

Scientific notation should be expressed in the form a x 10^n where a is a decimal, $1 < |a| < 10$, and n is an integer. For example:
Problem: Write 6895 in scientific notation.   *Answer:* 6.895 x 10^3

An answer expressed to a greater or lesser degree of accuracy than called for in the problem will not be accepted. Whole number answers should be expressed in their whole number form. Thus, 25.0 will not be accepted for 25, nor vice versa.