MATH

12/01

Math League News

■ **Our Calculator Rule** Our contests allow both the TI-89 and HP-48. You may use any calculator without a QWERTY keyboard.

■ **Viewing Scores on the Internet** Roughly 3 weeks after a contest, scores will appear at http://www.mathleague.com.

■ **Contest Dates** Future HS contest dates (and alternate dates), all Tuesdays, are Jan. 8 (15), Feb. 5 (Jan. 29), Mar. 5 (Feb. 26), and Apr. 9 (2). Except in January, the alternate date is always the preceding Tuesday. Do you have conflicts with our contest dates? Our rules say that, in case of vacations, special testing days, or other *known* disruptions of the normal school day, you should *give the contest on an earlier day*. If scores are late for due cause, please attach a brief explanation. We reserve the right to consider as unofficial late scores lacking such an explanation. We sponsor an *Algebra Course I Contest* in April, as well as contests for grades 4, 5, 6, 7, and 8. See www.mathleague.com for information.

■ **Regional Groupings** We sometimes receive requests about regional groupings. Within guidelines, we *try*, when possible, to honor such requests for the next school year.

■ **Student Cumulative Scores** Completion of the **Cumulative Column** is optional, but *we list (and consider **official**) only cumulative scores reported in this column.* A student whose cumulative scores are incorrect (or which don't appear regularly in the **Cumulative Column**) may lose eligibility for recognition by the League.

■ **What Do We Print in the Newsletter?** Our policy is to print every solution and comment we receive, newsletter space permitting. But we prepare the newsletter before the score report, so slow mail (a big problem in December!) means we don't print some comments. Finally, we may say "so-and-so sent an alternate solution" when tight space means we don't have room to print it.

■ **Some Tips on Getting Students Involved** One advisor asked how to persuade more "always busy" students to take our half-hour contests. Would you like to share your tip? Here's a start: **1)** Hold contests during lunch. Serve ice cream or fruit to those who eat while writing the contest. **2)** Use a bulletin board to name top students on each grade. Make a loudspeaker announcement too. **3)** Send a report to a local community newspaper. **4)** Serve cookies and drinks, with funds provided by the student government. **5)** Hold the contest jointly with a neighboring school. The kids will enjoy the occasional travel and meeting kids from another school. **6)** Post a colorful announcement the day before the contest so no one "forgets" about it on the day of the contest. **7)** At Awards Night, give our Certificate to the students on each grade level who score highest on the contests.

■ **General Comments About Contest #2** Richard Andra wrote "Thanks for the wonderful thought-provoking contests." Cassin Bertke told us that "we liked this contest because we could actually understand and even answer some of the questions." Bob Smith said "Once again, a great contest." Alan Lebovitz wrote "as a former student participant in your contests, and a current advisor, I have always thought the questions promoted higher levels of thought. You should be commended for a job well done!"

■ **Problem 2-1: Appeal** An advisor wrote "One student wrote 2.0000 and -2.0000. I feel that's wrong since you asked for integers. Let me know ASAP." Since 2 is an integer, 2.0000 is also an integer. Every integer has an infinite number of exact decimal places, and providing several 0s after the decimal point is allowed in writing an integer. The same is true for -2 and -2.0000.

■ **Problem 2-2: Inquiry** One advisor commented that "As for question 2-2, my student Kate and I agree that $xy = 1$, but do such and x and a y exist to make all three equations true? For instance, $x = 2001$ and $y = 1/2001$ is close, but not exact. Do you know of an x and y that do satisfy the equations?" Use the fact the $xy = 1$ to get $y = 1/x$. Substitute to get $x + 1/x = 2001$. Clear fractions to get $x^2 - 2001x + 1 = 0$, both of whose roots are real. What's true here is that trying to solve the original two equations on a graphing calculator by finding their points of intersection is a frustrating experience! Algebra is *much* easier.

■ **Problem 2-3: Inquiry** One advisor asked "Is 0.2, 0.3, 0.5 acceptable, or does the definition of rational only allow fractional answers?" Terminating and repeating decimals are in the field of rationals. As long as the three values are unequal, rational, and have a sum of 1, they deserve full credit. Orit Pintzov asked that we not have questions with an infinite number of correct answers.

■ **Problem 2-4: Appeals (denied)** Three appeals said that repeat games by the same pair of teams are not *different* games played, so 120 is the answer. They didn't consider multiple games between the same two teams as "different." When I tried to get into the 4th game of the World Series with a ticket I had bought for the 3rd game, I was told I had come to the wrong game!

■ **Problem 2-6: Comments & Appeals (denied)** One appeal was that "A student used 3.14 as an approximation for π. Is this OK?" Our rules require either *exact* answers or approximate answers that are correctly rounded to 4 or more significant digits. Since an answer based on using a value of π rounded to 3 digits cannot produce a proper 4-digit approximation, such an answer cannot be correct. An appeal for 254.48 was rejected because, to 5 significant digits, $81\pi = 254.47$. One advisor wrote that "We were surprised at the number of students who got 2-6 right. It appears that the diagram was drawn to scale, with the length of the base conveniently measurable as 2.4 cm. These students had just measured the radius to be 9 mm and then gave a correct answer. The scale drawing spoiled what would otherwise have been a discriminating question." Our rules *prohibit* the use of rulers! No student using a ruler should receive *any* credit!

Statistics / Contest #2

Prob #, % Correct (top 5 each school)

2-1	95%	2-4	81%
2-2	84%	2-5	87%
2-3	89%	2-6	28%