1/02

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.

■ **Use the Internet to View Scores or Send Comments** Just go to http://www.mathleague.com and look around!

■ **Future Contests and Rescheduling Contests** Contest dates are Feb. 5, Mar. 5, and Apr. 9. Our annual *Algebra Course I Contest* is in April. If circumstances (such as **vacations, school closings or special testing days**) *require* it, we permit you to give the contest on another date. If your scores are late, please attach a brief explanation, or the scores may be considered unofficial.

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

■ **T-Shirts Anyone?** We're often asked "Are T-shirts available? The logo lets us know fellow competitors." Featuring grey shirting and a small, dark blue logo in the "alligator region," we have MATH T-shirts in all sizes at a **very** low price. There's one low shipping charge per order, regardless of order size. You may use VISA, MasterCard, or Discover. To order, use our Web site, www.mathleague.com or phone your order 1-201-568-6328; or fax your purchase order to 1-201-816-0125.

■ **More Tips on Getting Students Involved** Maria Gale and Robin Simpson's schools give extra credit to students, such as a 100% hwk grade and extra points for each correct answer. Top scorers names are announced. Would you like to share your tips?

■ **General Comments About Contest #3:** Kay Castner wrote "This year's contests have been excellent." Nancy Gates asked us to scrap our ruler prohibition. It's there so teachers are not expected to provide rulers! In the future, rulers won't be helpful! Ana Tuazon said "every month the number of students joining the contest is increasing." Martha House thinks that "this year's contests seem to be more fun and generally within the range of ALL my students. I am enjoying them." David Abineri said "another great contest." Trudy Smith said attendance was low because it was the 2nd day back from a holiday. Maria Gale said "Thanks for some great questions." Patrick Fowler said "Thanks for the great contests." Joe Holbrook said "the younger students were particularly pleased." Jan Kimzey said her school "is on block scheduling" and her class no longer exists, so she cannot participate any longer. Sandra Craddock said "my students enjoyed this contest very much." Scott DeMaris suggested we enclose an extra contest with the newsletter. We suggest, instead, that the contests and solutions be posted the following day, and the newsletter be posted nearby, when it arrives, for increased interest. Bill Bonney said his "students are challenged but do enjoy the variety and the simplicity to complexity of the problems." Joe Griesbach wrote "thanks for another great set of problems."

■ **Problem 3-1: Appeals (denied) and a Comment** Two appeals claimed there may have been leftover pizza. Neither gave a complete answer based on this assumption. Both assumed the leftover pizza affected only the 2nd stage, not the 1st. This assumption is unwarranted, so the appeals were denied. Dwayne Cameron said 3-1 was a "nice starting problem for younger students."

■ **Problem 3-2: Comment** Dwayne Cameron called this "too easy with a calculator." Hey, 1 and 2 are *supposed* to be easy! ;)

■ **Problem 3-3: Appeals (denied) & A Comment** Mariett Eggleston wrote "We liked 3-3 because it let us talk to the kids about rounding digits in work." Many students solved for x in the 1st equation by graphing, but rounded several digits before substituting in the 2nd equation." A student giving an answer of more than 4 digits must round their answer *correctly* to the number of significant digits used. For example, 2002.000 is correct to 7 significant digits. One student chastised us for not putting the rounding rules in bold, in italics, in uppercase, and underlined. Part of an exam question is the ability to determine what the question requires—just as is done on the SAT and the AP exams. We help you prepare by giving you the chance to make all the silly mistakes on our contests first—so you'll get good scores on those exams!

■ **Problem 3-4: Comment & Appeals (Denied)** Three appeals were received. *All claimed our answer was incorrect!* One claimed that $a = 1, b = 11, c = -11$ makes $|ab-c| = 22$. It does! But $|a-c| = 12$ here, and we required that $|a-c| \le 10$. One claimed that $a = -1, b = 11, c = -11$ makes $|ab-c| = 22$. Those values make $|ab-c| = 0$. A One claimed that $a = -1, b = -9, c = -12$ makes $|ab-c| = 21$. It does, but $|a-c| = 11$ here, and we required that $|a-c| \le 10$. Our first solution, using several nice inequality theorems, proves that our answer is correct.

■ **Problem 3-6: Comments, Questions, Alt. Solutions** A teacher named Bruce said his students especially liked our neat 2nd solution. "We had 70 students saying that the questions were intriguing to even our youngsters in grade 9." Douglas Smith said that 3 students used the diagram as an actual scale diagram and got the right answer. Jeff Schwartzman echoed that "most of my students who got 3-6 right got it by guessing. The ones who used algebra and geometry usually got the problem wrong. What's wrong with this picture?" One advisor asked what, in Method 2, guarantees that the upper vertex of the triangle lies at the center of the circle. *An 8-unit downward translation places the upper vertex at a point which is equidistant (8 units in each case) from 3 different points on the circle, so it's been translated to the center of the circle.* Student Nathan Brown used the Pythagorean Theorem. Dwayne Cameron used coordinate geometry, letting the x-axis pass through the top of the square, and the y-axis pass through the upper vertex of the equilateral triangle. Brian Balsdon sent in two solutions but said "Your 'translation' solution is the best!!" Bryan Knight, who submitted a very clever solution using plane geometry and trigonometry, said that "many of my students guessed the answer; no one analyzed it correctly."

Statistics / Contest #3

Prob #, % Correct (top 5 each school)

3-1	96%	3-4	71%
3-2	86%	3-5	38%
3-3	80%	3-6	48%