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.

■ **Our Internet Score Center** All students whose scores you report must have been tested at the exact same time. Don't list students from any later class period. Instructions for submitting scores appear on each contest envelope. About 3 weeks after a contest, scores appear on our Web site, *www.mathleague.com*. Late scores must be accompanied by a brief explanation of the reason for lateness.

■ **Send Your Comments** to comments@mathleague.com

■ **Contest Dates** Future HS contest dates (and alternate dates), all Tuesdays, are Nov 20 (13), Dec 18 (11), Jan 15 (8), Feb 12* (5), Mar 18 (11). (Each alternate date is the preceding Tuesday.) For vacations, special testing days, or other *known* disruptions of the normal school day, please *give the contest on an earlier date*. If your scores are late, please submit a brief explanation. We reserve the right to refuse late scores lacking an explanation. We sponsor an *Algebra Course I Contest* in April, as well as contests for grades 4, 5, 6, 7, & 8. See *www.mathleague.com* for information.

** If you plan to give the AMC on Feb. 12, then please give the Math League contest on Feb. 5. Did that change your Math League schedule?*

■ **Not Yet Received Your HS Contest Package?** Phone 1-201-568-6328 so we can reship. If you just recently got the contests, *please take Contest #1 as soon as possible, even if it's late!*

■ **Carefully Check Your Contest Package** Without opening any contest envelope, please check that the remaining envelopes are numbered 2, 3, 4, 5, and 6. If you're missing a contest envelope, e-mail *dan(at)mathleague.com* with your name, the school's name, the full school address, and the number of the contest envelope you're missing. We'll mail you another set of contests right away.

■ **Eligibility Rules** Only students officially registered as students at your school may participate. That's our rule.

■ **Authentication of Scores** To give credibility to our results, we authenticate scores high enough to win recognition. Awards indicate compliance with our rules. Please have students read the *Selected Math League Rules* on the back of this sheet and then sign a sheet to confirm knowledge of the rules. *Keep* the signed copies. Do *not* send them to us unless we request authentication from you.

■ **Slowness at Our Score Report Center & A Comment** Continuing delays experienced by most teachers entering scores for the first contest were a source of frustration for all of us. We quickly hired a team of 3 experienced programmers to profile our system and examining our code. We'll spare no resource to solve this problem speedily. Our #1 priority is quickly fixing whatever caused the Score Report Center delays. (That even sounds annoying! Sigh) Despite the delays, Lynne Clark wrote "to congratulate you on the new format for entering scores." Thanks Lynne :)

■ **General Comments About the Contest** Rob Frenchick said "Thanks for making the 1st test so that many students got good scores. It was tough enough to separate the excellent math students, and there were enough problems to encourage developing students." Phyllis Dupere said "Very nice selection of problems. All students seemed to enjoy the variety." Linda Wheadon asked if we could insert a spot to record the student grade level electronically. We want to do that—but first we must cure the Score Report site slowness! Denny Cook said "This was a good first test." Brother Gary Eck said "Good contest. I liked the range of questions." Lenora Murray wrote "Great contest, as always." Debra Battaglia said "Your contests allow for some student success. That encourages and promotes student interest, enthusiasm, and continued participation." Chris Tamm "really liked this contest. We had grade 8-12 students participate. Even grade 8s got 2 correct." Keith Calkins said "Nice start. No one got a 0. All problems were simply explainable to 9th graders. The last question was a stopper." Tom North said "We're looking forward to the remaining contests." Marsha Platnick wrote "The 9th graders did better than the 12th graders." Daryl Shwerdtfeger had 112 participants! Charles Love said his kids "loved it and . . . can't wait to meet to talk about the questions."

■ **Problem 1-1: Alternate Solution** Student Nathan Preston said that, since y appears in both equations, assign it any fixed value, such as 0. You can now answer the question by observation.

■ **Problem 1-2: Alternate Solutions** Student Drew Cimino proved that the triangle's base is $2\sqrt{2}$ and its height is $3\sqrt{2}$. Its area is 6. A student of James Conlee's used a 3×3 matrix. Bobbie Mahaffey, using Hero's Formula on a whim. The results are a fascinating review of radicals and conjugates.

■ **Problem 1-3: Alternate Sols. & Comments** Stephanie Pederson had students use natural logs and base 4 logs. Jeff Ulrich had some students use logs, but some used guess and check. He thought this contest would have been better without calculators.

■ **Problem 1-5: Comments & Appeals (Denied)** One of Doris Rowe's students said "#5 was awesome!" Brady Ward felt 1-5 was inappropriate. He and many others said they were unfamiliar with the notation as we used it. If you evaluate the common function $y = 2^x$ when $x = 2^{22}$, you'll get 1-5's answer. Go to www.daviddarling.info/encyclopedia/P/power_tower.html for more information. Art Kalish said that one of his students said even larger results can be obtained using a *tetration* operation. *Google that word to learn more!* Appeals for answers with parentheses, prohibited by the question, were denied. John Burnette said this "seems to have been created to be an "anti-calculator" question. The TI-83 miscalculates the answer, but the TI-89 doesn't, although the result is an overflow. One kid got it right because of his TI-89, a basic unfairness." One appeal, denied, claimed the example we provided implied that only 1 level of exponents could be used. Some appeals claimed that 2^{222} was larger. That's just not true!

■ **Problem 1-6: Comments** John Graetz said "1-6 was a terrific problem!" He solved for z, then cleverly used table functions to display all 5 solutions. Br. Gary Eck said "The techniques used in 1-6 are very interesting." He said he'd love to see more problems using such techniques. Sharon Lomison said "5 solutions seems kind of extreme," a view echoed by Susan Pridemore & Jane Lee. Georgette Macrina & Judith Bishop both felt the frustration of students who got 3 or 4 of the 5 pairs. Craig Baumunk "noticed that most students had one correct answer for 1-6. They didn't consider the word "all." One of James Conlee's student got only 1 problem correct, this one! He spent 30 minutes writing a program.

Statistics / Contest #1

Prob #, % Correct (all reported scores)

1-1	87%	1-4	86%
1-2	73%	1-5	19%
1-3	63%	1-6	5%