Math League News

■ **Use the Internet to View Scores or Send Comments** to comments@mathleague.com.

■ **Contest Registration and Books of Past Contests** Register for next year by mail or on the internet right now! Renew now so you don't forget later! *You may ask us to bill you this fall.* We sponsor an *Algebra Course I Contest* and contests for grades 4, 5, 6, 7, and 8. Use the registration form enclosed with Contest #6 to register for contests or to **Order Books of Past Contests**.

■ **2018-2019 Contest Dates** We schedule the six contests to be held four weeks apart (mostly) and to end in March. Next year's contest (and alternate) dates, all Tuesdays, are October 16 (Oct. 23), November 13 (Nov. 20), December 11 (Dec. 18), January 8 (Jan. 15), February 12 (Feb. 19), and March 19 (Mar. 26). *Do you have a testing or other conflict?* If so, right now is a good time to put the alternate date on your calendar!

■ **Test Security Procedures** Students are expected to sign the honor pledge posted on our website, affirming that they "will neither give nor receive help with any of the Math League Contest questions either before or during any of the Math League Contests." Of course, in the end contest security is really a cooperative effort. Schools should do whatever they can to prevent premature disclosure of questions and/or answers. For our part, we are always monitoring the results for any suspicious outcomes, which we then investigate thoroughly.

■ **End-of-Year Awards and Certificates** Symbols identify winners. We ship plaques to the advisors. Errors? Write to *Math Plaques, P.O. Box 17, Tenafly, NJ 07670-0017.* Identify the award, contest level, your name, and the school's name and address. The envelope for Contest #5 contained Certificates of Merit for the highest scoring students overall and in each grade for the year. Do you need extra certificates for ties? If so, send a **self-addressed, stamped envelope large enough to hold certificates (you need to use *TRIPLE* postage)** to *Certificates, P.O. Box 17, Tenafly, NJ 07670-0017.* (Please allow one week.)

■ **General Comments About the Contest (and the Year)** Timothy Smith said, "Thanks for another great year!" Joe Griesbach said, "Thanks for another good year of interesting, challenging problems." Joseph Li said, "I want to say thank you to all the organizers and problem providers. This series of contests is wonderful for students at different levels to experience the fun of math competition and to build their confidence. It is also very good practice for AMC and AIME. This is the first year for us to participate and we will definitely continue in following years." Tim Baumgartner said, "Thank you for another amazing year of fascinating problems! May I suggest on the website for reporting scores, that you may perhaps want to put a check box option to say the student did not participate. This would help us when entering scores, not having to dig into the dropdown list of names. We could instead just skip that student, rather than entering a score of zero and throwing off your statistics. But mostly, Thank you! I don't know how you come up with all these great questions!" Please note that it is not necessary to enter a score for a student who did not participate in a particular contest; entering a score of 0 can be reserved for those situations in which a student does participate in the contest and actually gets no questions correct.

■ **Question 6-4: Comment and Appeal (Rejected)** Joseph Li said, "I like question 4." Denise Shea and Matt Harmon each appealed on behalf of students who included the boundary point (0,1) in their answers in addition to the two points listed as correct in the official solution. Since the question specifically calls for only points that are "inside the triangle" and we at Math League know of no high school textbook that defines the interior of a triangle in a way that includes boundary points, the appeal is rejected.

■ **Question 6-5: Comment** Joseph Li said, "Problem 5 is good. Some students made silly mistakes and got $4=2^2$. This is a good problem to understand expected values."

■ **Question 6-6: Appeal (Rejected) and Alternate Solution** One adviser appealed on behalf of a student who submitted 54 as his answer. Since no valid argument on behalf of this answer was submitted (and indeed, no argument whatsoever was submitted), the appeal is rejected. Ed Groth submitted an alternate solution of sorts, saying "Funny story. Just a couple days before I gave out math league #6, a student of mine wanted to stump me with one of those silly videos which 'proves' that 1 = 3. Turns out, in order to prove it incorrect, the student and I had to figure out the imaginary conjugate roots for $z^3 = 1$...which are $(-1 \pm i\sqrt{3})/2$. When #6 popped up on the exam, I immediately started jogging my memory trying to remember the roots, but once I got it, the question was fairly direct. Of course, your solution is much more elegant without the use of imaginary numbers, but this just goes to show the more inquisitive you are as a mathematician, the more you find these patterns and tricks useful in later problem solving."

Statistics / Contest #6			
Prob #, % Correct (*all reported scores*)			
6-1	77%	6-4	33%
6-2	51%	6-5	14%
6-3	35%	6-6	13%