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.

■ **Send Your Comments** to comments@mathleague.com. View results at www.themathleague.com before they arrive in the mail.

■ **Future Calculator Use** Thank you to everyone who responded to our question about calculator use on our contests. Although many different opinions were expressed, most advisors responding were in favor of allowing students to continue to use calculators on our contests. Some advisors suggested that we further restrict which calculators will be allowed, while others felt that careful selection of contest questions on our part would make any additional restrictions unnecessary. For next school year, we are keeping our current calculator rule. We will continue to monitor this issue, and may modify our calculator rule in the future.

■ **Upcoming Contest Dates & Rescheduling Contests** Future HS contest dates (and alternate dates), all Tuesdays, are Jan 11 (4), Feb 22 (15), & Mar 22 (15). (Each alternate date is the preceding Tuesday.) If vacations, school closings, or special testing days interfere, please reschedule the contest. Attach a brief explanation, or scores may be considered unofficial. We sponsor an *Algebra Course I Contest* in April, as well as contests for grades 4, 5, 6, 7, and 8. Get information and sample contests at *www.themathleague.com*.

■ **2011-2012 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 18 (Oct 11), November 15 (Nov. 8), December 13 (Dec. 6), January 10 (Jan 3), February 14 (Feb. 7), March 13 (March 6). Have a testing or other conflict? Now is a good time to put an alternate date on calendar!

■ **T-Shirts Anyone?** We're often asked, "are T-shirts available? The logo lets us recognize fellow competitors!" Good news — we have MATH T-shirts in a variety of sizes at a **very** low price. Use them as prizes for high or even perfect scores, or just to foster a sense of team spirit! The shirts are of grey material and feature a small, dark blue logo in the "alligator region." A photo of the shirt is available at our website. There's one low shipping charge per order, regardless of order size. To order, use our website, www.themathleague.com.

■ **New: Contests for iPads and iPhones!** We are pleased to announce that we now have iPad/iPhone versions of some of our contests available for downloading. ALL of our prior contests for grades 4, 5, and 6 are available now, including last year's contests. We expect to have all prior contests for grades 7 and 8 and the Algebra contests ready as well in about a month. We are not sure when high school contests will be available, but we are working on it! The link to these iPad/iPhone applications is on the home page of our website, www.themathleague.com.

■ **General Comments About Contest #3:** Daniel Wertz said, "My students and I really appreciate all you do to create challenging and fun math contests. Thank you." Mark Luce said, "I liked all these problems, although my students thought this was a rather hard contest. I especially liked problems 2 through 5. Thank you for another interesting collection of problems." Denes Jakob said, "Great questions again—keep up your good work!" Ginny Magid said, "My math department colleagues and I thought this was the best contest so far this year. The questions provoked thought but were also accessible. Thanks for a great contest!" Donald Brown said, "Is it just me, or do the problems each seem more difficult than the corresponding problems from previous years? I like the thought provoking discussions they generate." Susan Cantey said, "I thought this contest was quite reasonable with interesting doable problems." Nola Forbes said, "This proved to be a tough one for even our top contestants. (Maybe our testing week followed by a week of Exams has been an affect.) I hope the students will not be discouraged for trying Contest #4 scheduled for our first week of the new semester." Keith Calkins said, "My students just found questions 2-5 tough and 6 impossible." William Rollinson said, "Was this as brutal for most schools as it was for us? ... Even Question 3-1 was not too obvious. ... I thought this month's contest had way too much geometry...4 of the 6 questions." Fred Harwood said, "Tough time to have a contest in the last week before holidays. ... Good contest though." Ted Heavenrich said, "Great contest! I knew it would be hard for the students, but there was a nice selec-

tion of topics and approaches. Keep up the good work." Henry Valencia said, "Great Problems!!! Thank you for the opportunity to expose our kids to such a wonderful experience." Deb Smieja said, "The tests are more difficult than in previous years," and, "Our students continue to really enjoy all the contests that are prepared!!" Ed Groth said, "I love these tests! Keep challenging our students, with or without calculators!"

■ **Question 3-2: Appeal (Denied)** Christopher Ing appealed on behalf of students who answered 50 to this question, based on the idea of a triangle with sides of 9, 16 and 25. The Appeals Committee denied this appeal since the Triangle Inequality states that the sum of the lengths of any two sides of a triangle must be greater than the length of the third side.

■ **Question 3-4: Comments and Appeals (Accepted and Denied)** Denis J. Smith said, "Nice example of thinking outside the box." Fred Harwood said, "#4 had many people rationalizing with $\sqrt{2}$. Nice thoughtful question though." Steve Greg said, "Problem #4 was diabolical! All of my top students gave $\sqrt{2}$ as the answer." Robin Schuelke appealed on behalf of students who answered $\sqrt{\frac{1}{2}}$. This answer is mathematically equivalent to the correct answer, and does not show a lack of understanding of how to solve the problem, so it should be given credit. Robin also wondered whether it was acceptable to leave a radical expression in the denominator of a fraction, as we have in our answer key. It is; we do not require that radicals in the denominator be rationalized. One advisor appealed that the answer $\sqrt{2}$ is also correct; this appeal is denied, since the question specifically calls for the SMALLEST positive number that satisfies the stated conditions.

■ **Question 3-6: Comments, Appeal (Denied) and Alternate Solution** Several advisors, including Benjamin Dillon, Patricia Kassis, and Michael Sloan wrote in to point out that a student who got the wrong answer 3/2010 and wrote the decimal equivalent of that wrong answer rounded to 4 significant digits, would have gotten credit for the question (as that decimal is the same as the rounded decimal equivalent of the correct answer 3/2009). Patricia Kassis asked, "Better to always round?" Michael Sloan wondered whether there would be a disproportionately high percentage of students given credit for question 6 as a result; given that only 8% in fact got credit, it does not seem to have been disproportionately high. James Conlee and Ed Groth appealed that given the equivalency of the rounded decimals, 3/2010 or 1/670 should be accepted as correct. This appeal has been denied; to be given credit, an answer must be EXACTLY correct or a DECIMAL that is correct as rounded, to at least 4 significant digits. William Rollinson proposed the following clever alternate approach: "I thought of the probability of it NOT being a right triangle. The first point could be anything. The second could be any 2008 of the 2009 remaining (in order to not be endpoints of the same diameter). The third could be any 2006 of the 2008 remaining points for the same reason (twice). P(not right triangle) = 1 * 2008/2009 * 2006/2008 = 2006/2009. Therefore P(right triangle) = 1 - 2006/2009 = 3/2009."

Statistics / Contest #3

Prob #, % Correct (*all reported scores*)

3-1	79%	3-4	22%
3-2	43%	3-5	30%
3-3	69%	3-6	8%