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.

■ **Upcoming Contest Dates & Rescheduling Contests** Future HS contest dates (and alternate dates), all Tuesdays, are Jan 14 (21), Feb 11 (18), & Mar 11 (18). (Each alternate date is the following 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, and contests for grades 4, 5, 6, 7, and 8. Get information and sample contests at *www.themathleague.com*.

■ **Contest Dates for 2014-2015 and Alternate Dates:** HS contest dates for the next school year (and alternate dates), all Tuesdays, are October 14, 2014 (October 21), November 11, 2014 (November 18), December 9, 2014 (December 16), January 13, 2015 (January 20), February 10, 2015 (February 17), and March 17, 2015 (March 24). Please note that each alternate date is the Tuesday **following** the official date!

■ **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.

■ **Contests for iPads and iPhones** We have iPad/iPhone versions of ALL of our prior contests for grades 4, 5, 6, 7, and 8 and the Algebra contests available now, including last year's contests. 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.mathleague.com. Take note of our current special offer: access to **all** past contests at any selected grade level for **all** students at a given school for the low, low price of only $9.95 for the year!

■ **Administer This Year's Contests Online** Any school that is registered for any of our contests for the 2013-2014 school year may now register at www.online.mathleague.com for the 2013-2014 Online Contests at no cost. The advantages of administering the online versions of our contests rather than the paper and pencil ones are that you do not have to grade your students' papers and that you do not have to submit any scores at our Score Report Center ~ these tasks are done automatically for you when your students take our contests online. If you decide to use this free service, you must set up your account and set the day you are going to administer each contest at least one day in advance of the actual contest date.

■ **Students Hungry for More?** Don't forget, we do offer the *Algebra Course 1 Contest* in April!

■ **Error on Contest #6 (March 11)** There is an error on question #6-6 on High School Contest 6 scheduled for March 11. Please write on the outside of contest envelope #6 that for Question #6 students should replace "2014" with "the fourth root of 2014." No other change is necessary in the question. Please do not open contest envelope #6 until the contest date. Approximately two weeks before the official contest date, we will email school contacts a pdf with the corrected contest and a corrected solutions sheet. On the contest date, the contest administrator may either instruct the students to make the correction written on the outside of contest envelope #6 OR the contest administrator may make copies of the revised contest from the corrected pdf and use these copies with the students. The solutions sheet inside contest envelope #6 should be replaced with the corrected pdf of the solutions.

■ **General Comments About Contest #3:** Benjamin Wearn said, "This contest was more accessible—all the 9th graders were working hard to the end and many earned 3/6 points. Our students found 3-4 to be much harder than 3-5 or 3-6." Dick Gibbs said, "The contests so far have been very nice...Happy Holidays!" Thanks, and Happy Holidays to all of our advisors and student participants!

■ **Question 3-2: Appeal (Denied)** Cynthia Huettner and Wes Loewer appealed on behalf of students who submitted 0 years old as an answer to this question. While the appeals committee was tempted to give credit to this answer given that it is fairly creative, the appeal is denied on several grounds. First, the answer of 0 makes the question trivial; second, since the question mentions "the sum of its digits," there is an implication that there are at least two digits to sum; finally, it is generally the case that the day a person turns 1 year old is referred to as that person's first birthday.

■ **Question 3-3: Appeal (Accepted) and Alternate Solution** Erik Berkowitz appealed on behalf of a student who answered $2012^2 + 2013$. Since this response is mathematically equivalent to the correct answer and does demonstrate mastery of the question, it is an acceptable answer. Mike Jantz provided the following alternate solution submitted by one of his students: Given a row, R, the middle number of that row is the Rth number in the row. The middle number of each row is $R \times (R - 1) + 1$. So the 2013th number in row 2013 is $2013(2012) + 1$.

■ **Question 3-4: Comment** Benjamin Dillon said, "The phrase 'least possible number of unequal real roots' was quite confusing to me, so I imagine it was confusing to students as well. To say 'unequal real roots' implies that there must be at least two real roots so that they can be distinct."

■ **Question 3-5: Alternate Solution** Both Mark Dickson and Tom Wharton submitted the alternate solution of assuming that every term in the sequence is equal to 11 (setting the difference between successive terms to 0). The sum of the first 183 terms is then obviously 183×11.

■ **Question 3-6: Note and Comment** There was a typographical error in question 3-6 as it appeared on the contest originally sent to schools. The sixth of the ten sums listed should have been 8 but instead was printed as 9. An email note concerning the error on this question was sent to all school contacts about two weeks prior to the official contest date. The note included a link where a corrected version of question 3-6 could be downloaded. This correction also appears in the December Newsletter posted at www.mathleague.com. If your students did not get this correction in advance of the contest, please give credit to any student who wrote "no solution" or "no correct answer" or an equivalent answer for this question. Do not give credit to students who left the answer column blank. Dick Gibbs said, "This reminded me of one of my favorite problems of this type. The five numbers to be found produce only 9 distinct sums and these are given. The repeated sum can be deduced and then all 5 numbers can be found. For problem 3-6, if just the 8 different sums had been given, it's possible (but a bit more work!) to determine the 5 integers. The 8 distinct sums add to 65. Since the sum of all 10 is divisible by 4, the repeated pair must have sum 11, 15, 19, or 23. There are several cases to consider, but the only one leading to a solution is 19 = 8 + 11."

Statistics / Contest #3
Prob #, % Correct (*all reported scores*)

3-1	86%	3-4	20%
3-2	89%	3-5	26%
3-3	41%	3-6	28%