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 9 (16), Feb 13 (20), & Mar 20 (27). (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 2018-2019 and Alternate Dates:** HS contest dates for the next school year (and alternate dates), all Tuesdays, are October 16, 2018 (October 23), November 13, 2018 (November 20), December 11, 2018 (December 18), January 8, 2019 (January 15), February 12, 2019 (February 19), and March 12, 2019 (March 19). 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 2017-2018 school year may now register at www.online.mathleague.com for the 2017-2018 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!

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

Prob #	% Correct	Prob #	% Correct
3-1	77%	3-4	23%
3-2	24%	3-5	47%
3-3	8%	3-6	4%

■ **General Comments About Contest #3:** James Conlee said, "This was a challenging contest. Appropriate for the top students, but a little disheartening for the younger students." Josh Turner said, "That might have been the hardest contest (for my students) I've ever administered given the scores I had for submission. I'm not sure what it was, but students struggled mightily and were fairly disheartened at the end since no one scored higher than a 3. Here's hoping for better results in the future." Chip Rollinson said, "Another very tough contest for my students. I said last month's contest was the hardest one I could remember. That no longer seems to be true. One senior who missed a total of 1 question in 12 contests during his Sophomore and Junior years has missed 3 questions last month and this." Mark Luce said, "A challenging contest, with GOOD questions! I liked them, even if my students did not." Eleanor Pupko said, "I do have a weaker group than last year but even my strong students are struggling. I would like to see a variety of levels of difficulty in each contest. When none of my students can get a 5 or 6 - even students who scored 5 and 6 last year - and so many get a 1, it is hard to keep them coming back." Barbara Dawson said, "We found that this date was just before our exams. Kids were very stressed and either didn't attend or didn't work very hard because their classes are more important. Just thought you might consider moving to an earlier date in December for the future." Abdulkerim Akyalcin said, "Questions number 3 and 6 were great problems!!! We love the provided solutions, very creative! Thank you." Joseph Li said, "Problem 3, 5, 6 are very good problems."

■ **Question 3-1: Comment** Paul Allore said, "Most forgot to put '-' in front of the 30 on question 3-1."

■ **Question 3-2: Comments and Appeal (Denied)** Chip Rollinson said, "On #2, I had a few students assume that the coordinates had to have integer values.... so they put (3,6) since 6 = 2(3) and 6+3 = 9 = 3^2." Paul Allore said, "Most had a point with the y-coordinate double that of the x, and some had the sum of the two values equal to a perfect square. Unfortunately none had the least value. I think they thought x and y had to be integers." Joseph Li said, "Problem 2 is weird. Many good students got answer (3,6). The coordinates are not necessarily integers, but the condition 'square of an integer' leads them to think $3x$ should be a square of an integer so $x = 3$. This is a very crafty problem." Abby Brown appealed on behalf of the students who answered (3,6) after making the mistake of assuming integer coordinates were required, but since the question states only that they are "positive" coordinates, no such assumption is warranted and the appeal is denied.

■ **Question 3-3: Comments** Chip Rollinson said, "#3 is a tricky one... I think this should have been #5. It isn't so bad once you frame the problem the right way." Jeremy Klassen said, "This problem seems more complicated to me than a #3 spot."

■ **Question 3-6: Comment and Alternate Solutions** Chip Rollinson said, "I'm curious how many students got #6 via the provided solution... it's VERY elegant but I can't imagine coming up with that myself." Chip also included his alternate solution and one from his student, Jung Soo Chu. Both Chip and Jung Soo divided the hexagon into 6 isosceles triangles and then (in different ways) used trigonometry to solve the problem. Celia Rowland submitted an alternate solution, saying, "Find the measure of each arc (either 40 or 80 deg). Draw a diagonal to create a triangle that has one side of length 1 and one side of length 2. Do this on the other side as well. All angles can be found as inscribed angles. This leaves an isosceles trapezoid in the middle. Use formula (1/2)(1)(2)sin(120) to find the area of the triangles. Use trig to find altitude of the trapezoid, the trapezoid area formula to find its area. Sum all 3 areas."