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.

■ **Use the Internet to View Scores or Send Comments** to comments@mathleague.com. You can see your results at *www.mathleague.com.*

■ **Upcoming Contest Dates & Rescheduling Contests** Contest dates (and alternate dates), all Tuesdays, are February 9 (February 16) and March 15 (March 22). If **vacations, school closings, or special testing days** interfere, please reschedule the contest. Attach a brief explanation, or scores will be considered unofficial. We sponsor an *Algebra Course I Contest* and contests for grades 4, 5, 6, 7, and 8. Get information and sample contests at *www.mathleague.com.*

■ **2016-2017 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. 25), November 15 (Nov. 22), December 13 (Dec. 20), January 10 (Jan. 17), February 7 (Feb. 14), and March 14 (Mar. 21). Have a testing or other conflict? Now is a good time to put an alternate date on calendar!

■ **What Do We Publish?** Did we not mention your name? *We use everything we have when we write the newsletter.* But we write the newsletter early, so sometimes we're unable to include items not received early enough. We try to be efficient! Sorry to those whose solutions were too "late" to use.

■ **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.mathleague.com.*

■ **Contest Books Make A Great Resource** Have you seen our contest books? Kids love to work on past contests. To order, use out website, *www.mathleague.com.*

■ **Administer This Year's Contests Online** Any school that is registered for any of our contests for the 2015-2016 school year may now register at http://online.mathleague.com for the 2015-2016 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.

■ **General Comments About Contest #4:** Chip Rollinson said, "A more challenging batch than last month for sure...a good mix of challenge." Kipp Johnson said, "Perhaps the best thing about giving the test is that so many of the students discuss the test and argue about the solutions and talk about different ways to approach problems and...the list goes on. Thanks for providing the catalyst for some real thinking about math." Matthew Harmon asked, "We have a blind student at school with exceptional math skills who would like to try a contest. Can I have permission to get a copy of the contest Brailled?" Math League granted permission for the contest to be administered in Braille.

■ **Question 4-1: Comment:** Jeff Schwartzman said, "I am embarrassed by how many of my students missed Problem 4-1, and I let them know it."

■ **Question 4-3: Alternate Solution:** Jeff Schwartzman said, "Problem 4-3 can be handled nicely by factoring the numerator as a difference of cubes and reducing the fraction."

■ **Question 4-5: Comment:** Chip Rollinson said, "For #5, I had quite a few students who said 40 instead of 41."

■ **Question 4-6**: **Comments and Appeal (Accepted)** Denis Smith said, "Most of my students, as did I, missed the words polar coordinates and as a result wasted time on a question that many were unfamiliar with. Is it possible to highlight these types of words in future contests? Thanks." Rhonda de la Mar said, "I loved question #6. This is the first time I have seen a polar question. Great application with trig area formula. Not all of my students have seen polar, but for those that have it was a great question. Most of my students will see the topic later this spring. I will be sure to include the question in the unit." Chip Rollinson said, "#6 proved to be the most challenging problem. Many students have not learned about polar coordinates yet so they were at a loss. Some of them arrived at $3\pi/4$ which would be the area if the coordinates were in rectangular form. I had a few students who used a half-angle formula to arrive at a numerical form but then spent some time trying to simplify their answer to remove the nested square root (spoiler: it can't be done). I wish they could have known that they could leave answers in 'trig form'. Had the coordinates been $C(3,\pi/3)$ and $D(1,7\pi/12)$, then challenge would not have been lost and students could arrive at an exact answer without 'wasting time' working out the half-angle formula." One student, and Matthew Harmon on behalf of another student, appealed that an alternate but equivalent answer would obtain if before calculating the area, the solver first converts the coordinates into Cartesian form. The

appeal is accepted, and the equivalent answer is: $3\sqrt{2-\sqrt{2}} + \frac{3\sqrt{2}}{4}$

Statistics / Contest #4
Prob #, % Correct (*all reported scores*)

Prob #	% Correct	Prob #	% Correct
4-1	66%	4-4	54%
4-2	84%	4-5	29%
4-3	49%	4-6	10%