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 13 (February 20) and March 12 (March 19). 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.*

■ **2024-2025 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 15 (Oct. 22), November 12 (Nov. 19), December 10 (Dec. 17), January 14 (Jan. 21), February 11 (Feb. 18), and March 11 (Mar. 18). 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 2022-2023 school year may now register at http://online.mathleague.com for the 2022-2023 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:** Roger Finnell said, "As the coach of a high ranked team, I feel the need to tell you that again this contest was really too difficult. If you included perhaps two more problems each time that were a little less difficult, I think that fewer students would be discouraged and fewer schools would drop out from the league." Tim Thayer said, "Our students found Contest #4 to be very difficult. Only 13 of our 115 competitors scored 3 or higher. Not sure if this particular test was fair or not…"

■ **Question 4-3: Comment** Travis Bower said, "Does it matter if the 2 cards are chosen together? You say that there are 90 different card pairings, but I was thinking there would be 45. Thoughts?" Excellent point, Travis. Another way to think about the calculation (perhaps more reflective of the situation given) would be that there are 10nCr2 = 45 possible combinations of 2 cards without regard to order chosen, and of those there are 5nCr2 = 10 possible combinations of 2 cards that are both a 5 or lower (again, without regard to order chosen). There are thus 45 – 10 = 35 acceptable combinations out of 45, and the answer to the question is 35/45 = **7/9**.

■ **Question 4-4: Comments** Peter Knapp said, "I LOVED question 4-4. No computations. No complicated algebra. Just pure number sense to recognize the signs alternating and the absolute values decreasing so you can order the numbers. Not the hardest question, but very clever!" Benjamin Wearn said, "I also liked #4, it felt fresh yet could be solved just using number sense."

■ **Question 4-5: Alternative Solution** Benjamin Wearn said, "I solved #5 using scaling of 30-60-90 triangles. The top triangle is equilateral. So, the leftmost white triangle has sides 1/2 as long as the larger congruent triangles -> area/4. The rightmost white triangle has its long leg as the the short leg of a large one, so the sides are $1/\sqrt{3}$ as long -> area/3. This leads to $A/4 + A/3 + 120 = A$ -> $5A/12 = 120$ -> $A = 288$. Thanks for the interesting problem!"
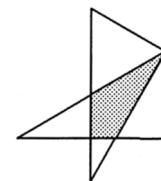
Statistics / Contest #4
Prob #, % Correct (*all reported scores*)

Prob #	% Correct	Prob #	% Correct
4-1	80%	4-4	21%
4-2	50%	4-5	12%
4-3	28%	4-6	9%