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.

■ **Contest Dates** Future HS contest dates (and alternate dates), all Tuesdays, are December 9 (Dec. 16), January 13 (Jan. 20), February 10 (Feb. 17), and March 10 (Mar. 17). (Each alternate date is the Tuesday following the official date.) For vacations, special testing days, or other *known* disruptions of the normal school day, please *give the contest on the following Tuesday*. If your scores are late, please submit a brief explanation. We reserve the right to refuse late scores lacking an explanation. We sponsor an *Algebra Course I Contest* in April, as well as annual contests for grades 4, 5, 6, 7, & 8. See *www.mathleague.com* for information.

■ **Regional Groupings** Within guidelines, we try, when possible, to honor regional grouping requests for the next school year.

■ **What Do We Print in the Newsletter?** Space permitting, we print every solution and comment we receive. We prepare the newsletter early, so we can use only what we have at that time.

■ **How Do I Change the Spelling of a Student Name?** Please note that an advisor can always return to the Score Report Center to change the spelling of a student's name or to correct a score. We stay out of the loop on such changes. Any advisor noticing a need for such changes should feel free to make them directly.

■ **Can I Add Additional Names and Scores to an Earlier Contest?** One advisor asks, "Since some students did very well in the second contest, can we add their names (with the scores) to the Contest 1 report?" We always allow adding additional names and scores to an earlier contest as long as the additions do not affect the team total previously submitted for the earlier contest.

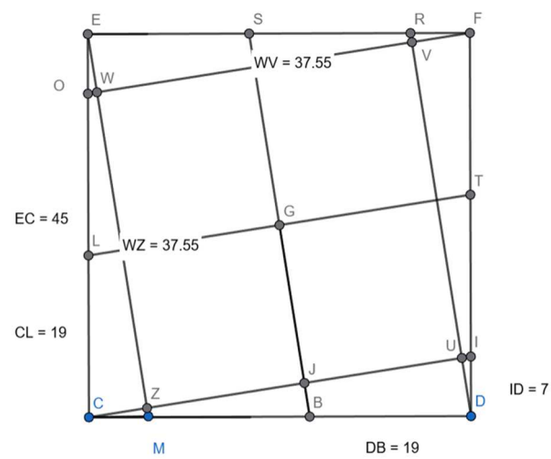
■ **Administer This Year's Contests Online** Any school that is registered for any of our contests for the 2025-2026 school year may now register at **www.online.mathleague.com** for the 2025-2026 Online Contests at no cost. The advantages of administering the online versions of our contests rather than 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 will administer each contest at least one day in advance of the actual contest date.

■ **General Comments About the Contest** Jon Graetz said, "Great contest!" Amy Hogan said, "Thanks for some good problems." Robert Morewood said, "Thanks for another invigorating contest."

■ **Question 2-2: Comment** Robert Morewood said, "I liked #2 because there were so many alternate solutions. For me, the Isoperimetric Inequality made it easy. But perhaps I know too much - none of my students knew of that before. Now they do!"

■ **Question 2-3: Comment** Robert Morewood said, "I was surprised and impressed by how many students attempted, and solved, #3. In the past I saw: More words - fewer answers!"

■ **Question 2-6: Comments and Alternate Solutions** Amy Hogan said, "One of our coaches solved #6 nicely by creating an interior parallelogram by connecting the 'center of a square to a point 19 units from a vertex' on each side of the square. My students and I loved that clever rotational thinking." Jon Graetz said, "I coordinatized the figure, with the lower left vertex at (0,0) and the center at (x,x). Then the right end of the segment from the origin is $(2x,7)$, and the lower endpoint of the segment from the center is $((2x – 19),0)$. Their slopes are $7/(2x)$ and $(x – 0)/(19 – x)$. Since the segments are perpendicular, $7/(2x) = (x – 19)/x$, so $7 = 2(x – 18)$, and $2x = 45$, the side length." Denes Jakob's student came up with a similar approach: "Let x be the side length of the square and let the bottom left vertex of the square be at the origin, (0, 0), such that the bottom side of the square is on the positive x-axis and the left side of the square is on the positive y-axis. Thus, the centre of the square is at $(x/2, x/2)$, the point on the bottom side is at $(x – 19, 0)$ and the point on the right side is at $(x, 7)$. The slopes of the segments are: $m_1 = (7 – 0)/(x – 0) = 7/x$ and $m_2 = (0 – x/2)/(x – 19 – x/2) = (- x/2)/(x/2 – 19) = - x/(x – 38)$. Now, the two segments are perpendicular, so their slopes are negative reciprocals: $m_1 = -1/m_2$. $7/x = -1/(- x/(x – 38))$; $7/x = (x – 38)/x$; $7 = x – 38$, $x \neq 0$; $x = 45$." Robert Morewood said, "One of my students suggested an alternative way to answer #6: He did not have time left to do it mathematically, but realized the side of the square would probably be in the forties, making the area in the thousands. He asked himself, what number in the thousands might the contest authors like? 2025! Making the square's side: $\sqrt{2025}=45$." Catherine VanNetta had a student who solved the question using the following diagram:



Statistics / Contest #2

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

2-1	59%	2-4	40%
2-2	60%	2-5	21%
2-3	60%	2-6	17%