



# 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](mailto:comments@mathleague.com). You can see your results at [www.mathleague.com](http://www.mathleague.com).

■ **Upcoming Contest Dates & Rescheduling Contests** Contest dates (and alternate dates), all Tuesdays, are February 13 (February 20) and March 20 (March 27). 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](http://www.mathleague.com).

■ **2018-2019 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 16 (Oct. 23), November 13 (Nov. 20), December 11 (Dec. 18), January 8 (Jan. 15), February 12 (Feb. 19), and March 19 (Mar. 26). 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](http://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 our website, [www.mathleague.com](http://www.mathleague.com).

■ **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 <http://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.

■ **General Comments About Contest #4:** Denes Jakob said, "As always we enjoyed the contest. Thanks!" Joseph Li said, "This is a good problem set: begin with easy problems #1 and #2, end with a challenging problem, and middle-difficulty problems in different topics: geometry, algebra, and number theory." Chip Rollinson said, "Very nice group of questions." Henry Valencia said, "Great set of problems. We appreciate the opportunity to expose our students to such a delight!" Mark Luce said, "I LOVED this particular contest! Well-conceived problems. My own score would have been a 5, as it took me more than an hour to figure out problem 6. I had one student who got the correct answer of  $1/3$  on that problem, but I need to ask him how he arrived at that number! I will re-use Problem 2 in a Geometry class, and will re-use problems 3, 4, and 5 in a Number Theory class."

■ **Question 4-4: Comments:** Michael Porinchak said, "I had many students who on 4-4 didn't think that they could repeat a prime number so many said they thought of 2,2,5 but didn't put it." Chip Rollinson said, "For #4, quite a few students thought 1 was prime which creates MANY more solutions."

■ **Question 4-5: Comments and Alternate Solution:** Michael Porinchak said, "As a precalculus teacher I was so proud how many kids got 4-5. It was a great problem that the students put some good thought into to discover the only  $x$  values are 1, -1, 23, and -23." Chip Rollinson said, "For #5, a handful of students found 1 and 23 for  $x$  but neglected to consider -1 or -23." Denes Jakob submitted an alternate solution from a student who said, "Solve the equation for  $2y$ .  $2y = (23/x) - (5x^2)$ . Since both  $x$  and  $y$  are integers,  $23/x$  must also be an integer. The only possible values of  $x$  that satisfy this requirement are -1, 1, -23, 23."

■ **Question 4-6: Comments:** Chip Rollinson said, "I liked #6 quite a bit...once you wrap your head around a graph of  $\text{floor}(\log_2(1/x))$ , it's not too bad...a nice elegant solution." Tim Thayer said, "The wording of Problem #6 is confusing. Writing 'greatest integer less than or equal to  $\log_2(1/x)$ ' seems unclear. I mean, to what are you applying the greatest integer function? Why not just use the notation for greatest integer, as you did in the solution? 'What is the probability that  $[\log_2(1/x)]$  is odd, where brackets denote the greatest integer function?' is much clearer a question, I think. Even better is to use either double-bar brackets or the floor function notation."

## Statistics / Contest #4

Prob #, % Correct (all reported scores)

4-1	73%	4-4	32%
4-2	83%	4-5	11%
4-3	63%	4-6	14%