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.

■ **Our Internet Score Center** All students who take the paper and pencil version of our contests and whose scores you report must have been tested at exactly the same time. Don't list students from any later class period. Instructions for submitting scores appear on each contest envelope. Scores you enter may be reviewed at any time by returning to the Internet Score Center. About 3 weeks after a contest, scores appear on our Web site, *www.mathleague.com*. Late scores must be accompanied by a brief explanation of the reason for lateness. Scores you enter may be reviewed at any time by returning to the Internet Score Center. About 3 weeks after a contest, scores appear on our Web site, *www.mathleague.com*. Late scores must be accompanied by a brief explanation of the reason for lateness.

■ **Contest Dates** Future HS contest dates (and alternates), all Tuesdays, are November 12 (Nov. 19), December 10 (Dec. 17), January 14 (Jan. 21), February 11 (Feb. 18), and March 11 (Mar. 18). Please note that each alternate date is on the Tuesday following the official date!! For vacations, special testing days, or other *known* disruptions of the normal school day on a contest date, please *give the contest on the following Tuesday.* If your scores are late, meaning beyond the week of an alternate date listed above, 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 contests for grades 4, 5, 6, 7, & 8. See *www.mathleague.com* for information.

■ **Administer This Year's Contests Online** Any school that is registered for any of our contests for the 2024-2025 school year may register at http://online.mathleague.com for the 2024-2025 Online Contests at no cost. 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.

■ **Eligibility Rules** Only students officially registered as students at your school may participate. That's our rule.

■ **Authentication of Scores** To give credibility to our results, we authenticate scores high enough to win recognition. Awards indicate compliance with our rules. Please print the Selected Math League Rules (posted on the same page as this Newsletter) and have students read them and then sign them to confirm knowledge of the rules. *Keep* the signed sheets. Do *not* send them to us unless we request authentication from you.

■ .**Past Contests Online** Teachers of any school registered for any of our 2024-2025 contests can now purchase online versions of the past contests for any selected grade (4th Grade through High School) for $9.95 per grade level for use throughout this school year at http://online.mathleague.com . For this fee, all students in your school can take all the past contests for a specific grade online. We grade each contest for you, provide you with answers and solutions, and keep statistics on each student's performance.

■ **We Are on Facebook!** Like us at https://www.facebook.com/TheMathLeagueInc

■ **Send Your Comments** to comments@mathleague.com.

■ **General Comment About the Contest** Travis Brownlee said, "The questions were great and fun! Well done!" Roger Finnell said, "A rather difficult contest for contest #1. Too much time needed on #5 and #6 to be able to finish all 6 problems." Denes Jakob said, "Thanks for a great High School Math Contest #1. My Math Club students enjoyed working on the problems!" Yanli Cui said, "Thank you so much for promoting the love for math and problem solving."

■ **Question 1-3: Alternate Solution** Denes Jakob submitted the following alternate solution to this question, saying "Simply multiply the left side by 3/3 to get 3/-150 < 3/n. Now that the numerators are equal it is easy to compare the two fractions and see that n=-151."

■ **Question 1-4: Typographical Error in Solution; Comment and Appeal (rejected)** Please note that the first number in the sequence of numbers in Method I of the solution to 1-4 should be 0, not "10" as incorrectly printed. John Failor submitted an appeal on behalf of students who answered 31 to this question, saying "Some of my students and I found the wording in problem 1-4 confusing. Is 31 an acceptable answer? It seems that $16 is removed first before the doubling." The second sentence of the question states that "he would take $16 from the hat **after** each doubling," and the third sentence specifies that the sequence of events begins when "I put money into Merlin's **empty** hat." Since the $16 comes out after the doubling, the interpretation that $16 is removed before the initial doubling is not valid and the appeal is rejected.

■ **Question 1-6: Comment and Alternate Solutions** Brian Geary said, "We feel that question 6 should have been worded better. But, thank you for the challenge." Denes Jakob's students submitted alternate solutions. They considered the number of triples possible starting from the highest possible value of a, 59, and working down through progressively lower possible values of a. They noticed a pattern in the numbers of possible triples and added them up to get the final answer: $1 + 2 + 4 + 5 + 7 + 8 + 10 + 11 + \ldots + 77 + 79 + 80 + 82 + 83 + 85 + 86 + 88 = 2611$. They also noted that summing 2 and 4, 5 and 7, and so on all the way through 86 and 88 resulted in a series of multiples of 6: $1\times6 + 2\times6 + 3\times6 + \ldots + 29\times6$. They then used the formula $n(n+1)/2$ to sum all the numbers from 1 to 29, multiplied by 6, and added the 1 that was left out: $(6)(n)(n+1)/2+1 = (3)(29)(30)+1 = 2610+1 = 2611$.

Statistics / Contest #1

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

1-1	78%	1-4	63%
1-2	43%	1-5	9%
1-3	58%	1-6	6%