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 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.

■ **Administer This Year's Contests Online** Any school that is registered for any of our contests for the 2013-2014 school year may now register at http://online.mathleague.com for the 2013-2014 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.

■ **Past Contests Online** Teachers of any school registered for any of our 2013-2014 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.

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

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

■ **Contest Dates** Future HS contest dates (and alternates), all Tuesdays, are November 12 (Nov. 19), December 3 (Dec. 10), 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, 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.

■ **Not Yet Received Your HS Contest Package?** E-mail dan@mathleague.com so we can reship. If you just recently got the contests, *please take Contest #1 as soon as possible, even if it's late!*

■ **Carefully Check Your Contest Package** Without opening any contest envelope, please check that the remaining envelopes are numbered 2, 3, 4, 5, and 6. If you're missing a contest envelope, e-mail *dan@mathleague.com* with your name, the school's name, the full school address, and the number of the contest envelope you're missing. We'll mail you another set of contests right away.

■ **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.

■ **General Comments About the Contest** Wes Loewer said, "We had a successful first ever Math League testing day today. Thank you for providing this opportunity to stretch some minds." Linda Muratore said, "Thank you for all you do. This is still our students' favorite contest." Kenneth Thwing said, "Thanks for writing another good set of problems." Fred Harwood said, "Enjoyed the questions today." Suzanne Antink said, "Loved the contest! Thank you!" Vivian Nelson said, "I'm so glad that the first contest this year was a bit easier than the first contest last year. The students and I were all quite discouraged after last year's first one." Kaleen Graessle said, "Brentwood Christian School enjoys Math League!" Ted Heavenrich said, "A good first contest, with problems that even beginners could sink their teeth into. Keep up the good work!"

■ **Question 1-2: Appeals (Denied)** Several of our advisors wrote in to ask about student answers of 192 to Question 1-2, based on adding 96 and 96. Laura Estersohn, Seth Haun, Mada Hoteit, Doris Kottwitz, and Nancy Miller all brought up the situation. While it is true that the question does not specify directly that the two multiples of 12 at issue are distinct, it does specify that the **greatest** common factor of the two multiples is 24. That precludes using 96 and 96 as the two numbers, as the greatest common factor of those two numbers would be 96 and not the specified 24. Thus an answer 192 is incorrect, and the appeals are denied.

■ **Question 1-3: Appeals (Denied)** Many submitted answers to Question 1-3 were unacceptable because they were not in the form specified by the question. Elena Histand Stuckey, Ann Morhaime, Kristen Amon, Kaleen Graessle, Margaret Hoffert, and at least one student appealed on behalf of the answer "148," Graham Bowers and Rick Brenner on behalf of "1,4,8" without parentheses, and Kaleen Graessle on behalf of "A=1, B=4, C=8." Since the question asked for an ordered triple, the only correct answer is (1,4,8) with parentheses. Our rules state that when a specific form of an answer is required, the answer must be written in that form for credit to be awarded. We are not alone among standardized tests and competitions in this regard, and ordered pairs and triples provide a common context for errors of form.

■ **Question 1-4: Comment** Ted Heavenrich said, "A lot of students were careless on 1-4, giving 18103 as their answer."

■ **Question 1-5: Comment and Appeal (Accepted)** Mark Luce said, "I have always loved the pretty geometry problems you have on your contests. Problem 5 was a very pretty geometry problem!" Fred Harwood wanted verification that an answer of $2\sqrt{5}$ would be considered correct, and yes, since it is the mathematical equivalent of the stated answer, it is considered correct.

■ **Question 1-6: Alternate Solution, Comments, and Appeals (Denied)** The official solution that accompanied the contest was a heuristic one that did not give the exact probability. Ed Groth said, as an alternate solution, "Suppose I had 100 000 surfboards made. I would expect 100 to be bad, meaning I'd have 99 900 good surfboards. Of those 100 bad surfboards, 99 would correctly test 'bad' but the 100th surfboard would yield a 'false positive' or 'good' result. Of those 99 900 good surfboards, I would expect 1% to test 'bad' or 999 surfboards. ... There are 1098 boards of the 100 000 which tested 'bad.' of those, 99 are actually bad. So the probability of a board being bad if it tests 'bad' should be 99/1098, or 11/122. Still 9% to the nearest whole percent." (This same result can be derived using Bayes' Theorem.) Ted Heavenrich said, "[Students] tended to make 1-6 harder than it was." Fred Harwood said, "Number 6 left me thinking hard and trying to decide if 1/10 or 1/11 would lead me to the correct solution. I had one student each pick one of these ideas." Several students and advisors, including Scott Berger, Valerie Krieman, Kenneth Thwing, and John Walter, appealed for answers of 9.016%, .0902, or 11/122. None of those answers gives the probability to the nearest 1%, as required in the question. All such appeals have been denied. Please note that we are sympathetic to the idea that such answers do demonstrate a good understanding of the material and might very well be given at least partial credit on an exam for a math class, but given that partial credit is not an option and that it is a contest and not an academic test, we feel that proper form must be required.

Statistics / Contest #1

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

Prob #	% Correct	Prob #	% Correct
1-1	87%	1-4	48%
1-2	76%	1-5	14%
1-3	68%	1-6	11%