



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 and view results at www.mathleague.com before they arrive in the mail.

■ **Upcoming Contest Dates & Rescheduling Contests** Contest (and alternate) dates, all Tues., are Jan. 15 (8), Feb. 12 (5), and Mar. 18 (11). If **vacations, school closings, or special testing days** interfere, please reschedule the contest. Attach a brief explanation, or scores may be considered unofficial. We sponsor an *Algebra Course I Contest* and contests for grades 4, 5, 6, 7, and 8. Get information and samples contests at www.mathleague.com.

■ **2008-2009 Contest Dates** The good news is that our Internet Score Report Center allows us to move contest dates forward. We schedule the 6 contests to be held 4 weeks apart (mostly), and to end in March. Next year's contest (and alternate) dates, all Tuesdays, are: Oct. 21 (14), Nov. 18 (11), Dec. 16 (9), Jan. 13 (6), Feb. 24 (17), Mar. 24 (17). If you have a testing or other conflict, right now is a good time to put an alternate date on your calendar! Dennis Kunimura said "Our school loves the accelerated schedule and hope that you will continue this into the future."

■ **T-Shirts Anyone?** We're often asked "Are T-shirts available? The logo lets us know fellow competitors." Featuring grey shirting and a small, dark blue logo in the "alligator region," we have MATH T-shirts in all sizes at a **very** low price.



There's one low shipping charge per order, regardless of order size. You may use Amex, VISA, MasterCard, or Discover. To order, use our Web site, www.mathleague.com or you may phone your order to 201-568-6328; or fax your purchase order to 201-816-0125. **Advisor Linda Muratore said "we give one of your t-shirts to each student who gets a score of 6. They can get only one shirt in 4 years. They do enjoy earning the shirt!"**

■ **The Internet Score Report Center** Ever since the no-holds-barred fix we made in our software, our Internet Score Report Center has been humming along. Whew! Renetta Deremer said "WOW!! It was really easy and fast to submit the scores. Thanks for repairing the glitches since contest 1." Dana Rubin said "the new cumulative scoring feature is excellent since it will greatly assist our math department for determining end-of-year awards." Janice Boraz wrote "The only problem I have is once scores are entered, I'd like to know they were entered successfully." Our programmer said "if you SUBMIT the score and begin a new entry, you successfully submitted the previous score."

■ **General Comments About Contest #3:** Paulette Sirakos said "Great test." Ginny Magid wrote "This was a great contest. The last question was quite good and challenged our students." Chris Healy said "Thanks for the holiday gift of contest 3. The questions were nicely accessible for even ninth graders, 2 of whom had 5s! They were thrilled to death!" Dana Rubin was "amazed at all the scores of 5, with very few answering 3-6 correctly." Ken Locklin wrote that this contest had "great questions." Bruce Akitt said "Great challenge! Some questions were doable by all."

■ **Problem 3-2: Appeals (Accepted)** There were two appeals for answers that were marked incorrect because they were not exact. Our rules say that answers given in decimal form, correctly rounded to 4 or more significant digits, are acceptable unless otherwise indicated. Correct decimal answers for this question include 157.1, 157.08, 157.080, 157.0796, 157.07963, 157.079633, 157.0796327, 157.07963268, etc.

■ **Problem 3-3: Comments** Dan Ellis thought that each got \$4.50 if they "split" the \$9. Melanie Moody had many students complain about the wording. "It confused many of them," a sentiment also expressed by Ken Locklin. Dave Auguston "found the wording confusing. Only after carefully reading the solution did I understand the question." Martin Ye sent protested the wording, without a specific appeal.

■ **Problem 3-4: Alternate Solution** Student Andrew Tew sent us an elegant alternate solution. After setting each factor equal to 0, he took the logs of both sides, then he solved for x . In one case, he got $x = (\ln 5 - \ln 3)/(\ln 3 - \ln 5) = -1$. In the other case, he got $x = (\ln 5 - \ln 3)/(\ln 5 - \ln 3) = 1$.

■ **Problem 3-5: Alternate Solutions** N. Compton and some of Andrew Bleichfeld's students and some of Donna Miller's students studied the pairings of the set number with the first numbers in each set. Their first digits' 2nd order of differences is constant, so it's a quadratic function. Substitute 3 pairs into a general quadratic. Solve to get $f(n) = 0.5n^2 - 0.5n + 1$, so $f(100) = 4951$.

■ **Problem 3-6: Comments and Alt Sols** Student Jonathan Choi and advisor Susan Canty suggested the same approach, which is part guess and check (but only two very clever people saw that!). Jonathan said "I assumes values of x , starting at 1, and solved for a . I found the other value of x by solving the original equation with the new a value. When $x = 2$, I got $a = -3/7$, which in turn yielded $x = 4$. A bit lucky, I suppose." It was great! :) Patrick Mara wrote " $a(x-r)(x-s) = ax^2 - a(r+s)x + ars = ax^2 + (a+3)x + (a-3)$. Equating coefficients, $-ar - as = a+3$ and $ars = a-3$. Adding, $-r-s+rs = 2$, which we can solve by trial." NICE! A more technically sophisticated approach, which boils down to the same approach, was suggested by Robert Morewood who said that a calculator table of values could help. Morewood's approach involved analyzing graphs using ideas from calculus, a far from elementary approach! When one of Bruce Akitt's students also found the trial and error solution, his classmates booted! Hey, it's not like Barry Bonds hitting one! The method is quite good! Many of James Smith's students mistakenly tried to solve for a .

Statistics / Contest #3

Prob #, % Correct (all reported scores)

3-1	91%	3-4	69%
3-2	60%	3-5	53%
3-3	72%	3-6	7%