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 Dec 13 (6), Jan 10 (3), Feb 14 (7), & Mar 13 (6). (Each alternate date is the preceding Tuesday.) For vacations, special testing days, or other *known* disruptions of the normal school day, please *give the contest on an earlier date.* 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.

■ **Contest Dates for 2012-2013 and change in alternate date policy:** HS contest dates for the next school year (and alternate dates), all Tuesdays, are October 16, 2012 (October 23), November 13, 2012 (November 20), December 11, 2012 (December 18), January 8, 2013 (January 15), February 12, 2013 (February 19), & March 12, 2013 (March 19). Please note that starting in October 2012, each alternate date will be on the Tuesday **following** the official date.

■ **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. Accordingly, we try to 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.

■ **General Comments About the Contest** James Conlee said, "Great contest. Challenging for all the kids." George Egbert said, "Another fine contest!"

■ **Question 2-2: Alternate Solutions** April Parker had not one, but two alternate solutions submitted by her students. The first student assigned variables to the y-coordinates of the two points of intersection of the line through the origin and the square. She then used the formula for the area of the trapezoid formed by the square, the line, and the x-axis to get an equation with two variables. A second equation with the same two variables came from subtracting the area of the triangle formed by the line, the x-axis, and the vertical at $y = 3$ from the triangle formed by the line, the x-axis, and the vertical at $y = 5$. The second student also worked with the difference in area between the two triangles, but took advantage of the properties of the similar triangles along with the distance formula to get a second equation. George Egbert pointed out to his calculus class that this question can be solved by solving for k in the following equation:

$$\int_3^5 kx\,dx = 2$$

None of these alternate solutions require knowledge that the line goes through the center of the square.

■ **Question 2-3: Alternate Solution** One of Robert Hilton's students came up with an alternative solution to Question 3. Since 2011 is a prime, $a^2 - b^2$ can be factored to $(a + b)(a - b) = (2011)(1)$, so $(a + b) = 2011$.

■ **Question 2-4: Appeals (Accepted and Denied)** George Benack had a student who wrote both "$2 + 2\sqrt{3}$" and "≈5.454" in the answer box. The student should receive credit, since both the exact answer and the approximate answer correct to 4 significant digits are written. On the other hand, Tim Smith had a student who wrote "5.46" in the answer box. Unfortunately for that student, we cannot give credit for a correct answer if an approximation does not have at least 4 significant digits correctly rounded.

■ **Question 2-5: Alternative Solution** George Egbert said, "One student showed us how to solve problem 5 by solving the problem 1ABCDE x 3 = ABCDE1, which I thought was clever."

■ **Question 2-6: Comments and Alternate Solution** John Burnette said, "We LOVED the solution for Question 6. Nicely elegant." Fred Harwood said, "Well done." Thomas Rike suggested, "Think of integers. You need at least five 8s in the ones place to get a 0. With the carry of 4 you need two 8's in the tens place. With the carry of 2 you need one 8 in the hundreds place. Therefore 888 + 088 + 008 + 008 + 008 = 1000. (It may be clearer if written vertically.) Now think of decimals."

Statistics / Contest #2

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

2-1	85%	2-4	31%
2-2	49%	2-5	43%
2-3	81%	2-6	16%