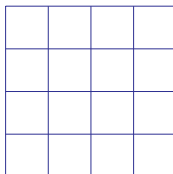


Challenge of the Week

Challenge of the Week # 3 - September 11 to September 18, 2009

Is it possible to put the integers 1 through 16 in a 4×4 array of squares (as shown below) so that



- (i) one integer is placed in each small square;
- (ii) all 16 integers are used exactly once;
- (iii) if you multiply the numbers in each of the four **rows** and add the four products, the result **is divisible by 5**; and
- (iv) if you multiply the numbers in each of the four **columns** and add the four products, the result **is not divisible by 5**?

Justify answer by providing an example, if one exists, or by proving that no such example exists.

Direct any questions concerning this week's challenge to Kamlesh Parwani, OM 3351

Rules and Awards

- Any undergraduate currently enrolled at EIU is eligible to participate.
- Each solution is to be the work of one individual and is to be submitted with the solver's name, year in school, email address, local address and home address.
- Each solution is to be written or typed and is due in the main Mathematics Department office (OM3611) by 2:00 p. m., Friday, September 18.
- Entries will be graded on the basis of clarity of exposition and elegance of solution.
- An award of \$20 will be given for the best solution. In the case of a two-way tie, the award will be split. If there are more than two 'best' solutions, a drawing will be held for the award. In case no award is made for this week's challenge, \$20 will be added to the next week's award.
- Names of all solvers will be posted on the Challenge of the Week bulletin board and on the Challenge of the Week homepage: <http://www.ux1.eiu.edu/~dmbroline/chalweek/index.html>