

Math Competition

PROBLEM #5

April 18, 2016 to April 29, 2016

Twenty children, some boys, some girls, sit at a round table. Each child wears a blue or a red T-shirt. The right neighbor of each boy wears a **blue** T-shirt, and the left neighbor of each girl wears a **red** T-shirt. How many boys can be there?

Give all possible answers and justify them.

Direct any questions to:

Gregory Galperin (OM 3361);

Grant Lakeland (OM 3630);

Peter Andrews (OM 3341).

Rules & Rewards

- 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 (OM 3611) by **2:00pm, Friday, April 29, 2016**.
- Entries will be judged on the basis of clarity of exposition and elegance of the solution. That is to say, the *explanation* is more important than the answer.
- An award of \$25 will be given for the best solution. In the case of a two-way tie, the award will be evenly split. If there are more than two 'best' solutions, a drawing will be held for the reward. In the case no award is made for this week's challenge, \$25 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.eiu.edu/math/challenge.php>