

University Math Challenge

October 10, 2022 to November 4, 2022

PROBLEM # 2

Let ABCD be a convex quadrilateral.

(1) Explain how to find the point O inside the quadrilateral so that the sum of the distances from O to each of the vertices, $OA + OB + OC + OD$, is as small as possible.

(2) Can the point O be found by using only a straightedge (i.e., drawing only straight lines)? Explain your answer.

*Direct any questions to
Grant Lakeland (OM 3226)*

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, November 4, 2022.
- 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 \$50 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, \$50 will be added to the next week's award.
- Names of all solvers will be posted on the Challenge of the Month bulletin board and on the Challenge homepage: <http://www.eiu.edu/math/challenge.php>