The problems are available at `http://jan.ucc.nau.edu/ns46/pow`. Paper copies are provided outside the Math Office: Room 107, Adel Mathematics Building. Contact Nándor Sieben (Adel 175) if you have any questions about the problems. Please submit your solutions to the Math Office by Monday 3/22/10. Winning solutions and a summary of scores are at the POTW bulletin board in the Adel Math Building.

Research problems with unknown solutions are marked by (!). These problems might be hard or might be easy, we just do not know. A conjecture or a result about a special case or simply an idea about a possible solution method can be very valuable.

No deduction

a. Prove that if a convex quadrilateral is not a parallelogram then it is possible to select three sides, such that the triangle enclosed by the lines of the sides contains the quadrilateral.

b. Show that a convex polygon with at least 5 sides always has two consecutive angles whose sum is greater than π.

c. Prove that if a convex polygon is not a parallelogram then it is possible to select three sides, such that the triangle enclosed by the lines of the sides contains the polygon.

23. **PROBLEM OF THE WEEK** NAU Math. & Stat.

The problems are available at `http://jan.ucc.nau.edu/ns46/pow`. Paper copies are provided outside the Math Office: Room 107, Adel Mathematics Building. Contact Nándor Sieben (Adel 175) if you have any questions about the problems. Please submit your solutions to the Math Office by Monday 3/22/10. Winning solutions and a summary of scores are at the POTW bulletin board in the Adel Math Building.

Research problems with unknown solutions are marked by (!). These problems might be hard or might be easy, we just do not know. A conjecture or a result about a special case or simply an idea about a possible solution method can be very valuable.

No deduction

a. Prove that if a convex quadrilateral is not a parallelogram then it is possible to select three sides, such that the triangle enclosed by the lines of the sides contains the quadrilateral.

b. Show that a convex polygon with at least 5 sides always has two consecutive angles whose sum is greater than π.

c. Prove that if a convex polygon is not a parallelogram then it is possible to select three sides, such that the triangle enclosed by the lines of the sides contains the polygon.