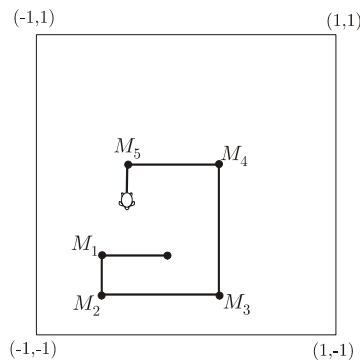


Problem of the Week.

May 17-24

Proposed by Bernardo Ábrego and Silvia Fernández.

Let S be the square with vertices $(-1, -1)$, $(1, -1)$, $(1, 1)$, $(-1, 1)$. A turtle is somewhere inside the square. She walks west (left) half the distance to the side of the square in front of her and places a marker M_1 . Then she turns left and walks again half the distance to the side of the square in front of her and places the marker M_2 . The turtle keeps doing this, always turning 90° left, walking half the distance to the side of the square that she is facing, and placing a new marker there. Prove that the marker M_{2004} is within $\frac{1}{2^{1001}}$ from the point with coordinates $(\frac{1}{3}, \frac{1}{3})$.



Deadline: May 24, 2004 before 9:00 PM.

The next problem of the week will be available next semester (August 23).

www.csun.edu/math/probweek

Rules:

1. Open to all enrolled undergraduate and graduate CSUN students.
2. The first complete and correct solution will be awarded a diploma and a five dollar prize.
3. The winner solution and the names of the authors of all correct solutions will be published in our web site (www.csun.edu/math/probweek). All authors whose solutions are complete and correct will receive certificates.
4. All solutions must be typed and sent electronically. PDF, Latex, or Word files are preferred.
5. All steps of the solution must be clearly justified.
6. Email your solution with subject "Problem of the week" to Bernardo.Abrego@csun.edu.
7. Late solutions will not be considered.
8. For any questions contact the organizers:
Bernardo.Abrego@csun.edu or Silvia.Fernandez@csun.edu

If you like puzzles and challenging problems ... join the Mathematics Department Problem Solving Workshop. We meet every Friday at 2:00 PM in FOB room 108. For more information visit our web site: www.csun.edu/math/workshop.