



UNIVERSITY OF WISCONSIN
PLATTEVILLE
DEPARTMENT OF MATHEMATICS

PROBLEM OF THE WEEK #10
(Fall 2017)

Some 1s and some -1 s are arranged in a circle: 2017 of each, in fact. Let S be the sum of all 4034 products of adjacent pairs of numbers around the circle. Prove that no matter how the 1s and -1 s are arranged, $S \neq 0$.

[Please fully explain your answer.]

Solutions should be submitted to Cinda Furry, in Gardner Hall 435, by 4:00 P.M. on Wednesday, November 22, 2017.

Every week, the best solution submitted earns a \$10 Platteville gift certificate; the top scorer each semester also wins a cash award. Good luck!

You can always see the Problem of the Week (and complete rules) online at:

<http://uwpmath.weebly.com/>