



UNIVERSITY OF WISCONSIN
PLATTEVILLE
DEPARTMENT OF MATHEMATICS

PROBLEM OF THE WEEK #6
(Fall 2023)

Rick is on vacation on Trichotomy Island. The roads on this island have been laid out so that exactly three (two-way) roads come together at each intersection. That is, at any point where Rick has the opportunity to turn, he can either take a left fork or a right fork. (He can't go back the way he came, because U-turns aren't allowed.)

It's a nice day, and Rick wants to go for a drive in his convertible, but he doesn't know his way around, and he doesn't want to get lost, so he makes a plan. Once he leaves his parking place, he will turn right at the first intersection, then left at the next intersection, then right, then left, and so on. Prove that if Rick follows this plan, he will eventually get back to his original parking place.

[Please fully explain your answer.]

Email solutions to swensonj@uwplatt.edu by 2:00pm on Wednesday, October 25, 2023.

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/>