Alice and Bob are out for coffee, and they decide to play a game. They take all of the coins they have and lay them in a row on the table. There is an even number of coins and they are a mix of pennies, nickles, dimes, quarters, half dollars and dollars. Alice and Bob take turns picking a coin from either end of the row and keep it in a pile next to them. Prove that if Alice goes first, she always has a strategy to have at least as much money as Bob after all of the coins have been taken.

Solution: At the beginning of the match, Alice looks at the coins in the odd positions and sums them and compares that to the sum of the coins in even positions. She decided which set she wants (the bigger set,) and is always able to take a coin from that set until all coins are gone. Thus she will always be able to have at least as much money collected as Bob.

The Problem of the Week is open to all undergraduate students, regardless of major. Submit your written solution, along with your name and e-mail address, to the Math Department office (Founders Hall Room 2006) by 2:00 p.m. on Friday, November 20, 2015. The person who submits the best solution will win a $10.00 gift certificate to the Barista’s Daily Grind; the best solution will be posted with the next Problem of the Week on Monday, November 23, 2015.

Stop by the math offices in Founders Hall Suite 2000 to see last weeks solutions.