

## Problem of the Week

Proposed by Bernardo Ábrego and Silvia Fernández

September 26- October 3

Suppose you have two individually shuffled poker decks (52 cards in each), one on top of the other. For each card  $C$  in the top deck, count the number of cards between  $C$  and the card with the same value in the bottom deck. (For example, the number of cards between the ace of spades in the top deck and the ace of spades in the bottom deck.)

Show that the sum of the 52 numbers obtained from this count is constant regardless of how the two decks were shuffled.

This contest is sponsored by the Mathematics Department. Open to all CSUN students.

Winner gets \$5 or an equivalent prize. All complete and correct solutions get a certificate.

Type and send your solution before October 3rd, 9:00PM to [bernardo.abrego@csun.edu](mailto:bernardo.abrego@csun.edu).

All steps of the solution must be clearly justified.

For rules, winners, solutions, and more information visit: [www.csun.edu/math/probweek](http://www.csun.edu/math/probweek)