Lewis & Clark College

Department of Mathematical Sciences

Problem of the Week #12   (Spring 2018)

A *transposition* of a vector is created by switching exactly two entries of the vector. For example, $(1, \mathbf{5}, 3, 4, \mathbf{2}, 6, 7)$ is a transposition of $(1, \mathbf{2}, 3, 4, \mathbf{5}, 6, 7)$ by switching entries 2 and 5. Find the vector $\boldsymbol{v}$ if $\boldsymbol{w} = (0, 0, 1, 1, 0, 1, 1)$, $\boldsymbol{x} = (0, 0, 1, 1, 1, 1, 0)$, $\boldsymbol{y} = (1, 0, 1, 0, 1, 1, 0)$, and $\boldsymbol{z} = (1, 1, 0, 1, 0, 1, 0)$ are all transpositions of $\boldsymbol{v}$. Explain the method you use to find $\boldsymbol{v}$.

- This is the last POW for this semester.

- Solvers should include their name, address, and status at the College. Solutions can be mailed to MSC 110 via campus mail or placed in Yung-Pin Chen's mailbox in the Math Department Office. Solutions to the above *Problem of the Week* should be received by 5:00 p.m. Monday, April 23, 2018.

- Christopher Karagiannis (so.) solved *Problem of the Week* #11. Congratulations to him.