Day 17 homework - Assigned 2/24 and due 3/6

Starred problems below are extra-credit for undergraduates and required for graduate students.

1. Let $\alpha = \begin{bmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 \\ 5 & 4 & 3 & 7 & 8 & 2 & 6 & 1 \end{bmatrix}$.

(a) Write α in cycle notation and determine if α is even or odd.

(b) Use the cycle notation representation of α to write α as a product of 2-cycles.

2. Show that if a is an even permutation in S_n and x is any element of S_n, then xax^{-1} is also even.