

Initial configuration

$$x \begin{array}{|c|c|c|c|} \hline 0 & 1 & 2 & 3 \\ \hline \end{array}$$

×

$$y \begin{array}{|c|c|c|c|} \hline 0 & 1 & 2 & 3 \\ \hline \end{array}$$

=

$$A \begin{array}{|c|c|c|c|} \hline 0,0 & 1,1 & 2,2 & 3,3 \\ \hline \end{array}$$

After the first permutation

$$x \begin{array}{|c|c|c|c|} \hline 0 & 1 & 2 & 3 \\ \hline \end{array}$$

×

$$y \begin{array}{|c|c|c|c|} \hline 1 & 0 & 3 & 2 \\ \hline \end{array}$$

=

$$A \begin{array}{|c|c|c|c|} \hline 0,1 & 1,0 & 2,3 & 3,3 \\ \hline \end{array}$$

After the second permutation

$$x \begin{array}{|c|c|c|c|} \hline 0 & 1 & 2 & 3 \\ \hline \end{array}$$

×

$$y \begin{array}{|c|c|c|c|} \hline 2 & 3 & 0 & 1 \\ \hline \end{array}$$

=

$$A \begin{array}{|c|c|c|c|} \hline 0,2 & 1,3 & 2,0 & 3,1 \\ \hline \end{array}$$

After the third permutation

$$x \begin{array}{|c|c|c|c|} \hline 0 & 1 & 2 & 3 \\ \hline \end{array}$$

×

$$y \begin{array}{|c|c|c|c|} \hline 3 & 2 & 1 & 0 \\ \hline \end{array}$$

=

$$A \begin{array}{|c|c|c|c|} \hline 0,3 & 1,2 & 2,1 & 3,0 \\ \hline \end{array}$$