Steve Pulec
Math 475

10

Quiz

List the permutations of $\{1, 2, \ldots, n\}$ $p_1, p_2, \ldots, p_{n!}$ such that p_{k+1} differs from p_k by swap of adjacent elements.

a.) $n=2$

1, 2
2, 1

b.) $n=3$

1, 2, 3
1, 3, 2
3, 1, 2
3, 2, 1
2, 3, 1
2, 1, 3

c.) $n=4$

1, 2, 3, 4
1, 2, 4, 3
1, 4, 2, 3
4, 1, 2, 3
4, 1, 3, 2
1, 4, 3, 2
1, 3, 4, 2
1, 3, 2, 4
3, 1, 2, 4
3, 1, 4, 2
3, 4, 1, 2
4, 3, 1, 2

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4, 3, 2, 1
3, 4, 2, 1
3, 2, 4, 1
3, 2, 1, 4
2, 3, 1, 4
2, 3, 4, 1
2, 4, 3, 1
4, 2, 3, 1
4, 2, 1, 3
2, 4, 1, 3
2, 1, 4, 3
2, 1, 3, 4