

1) Nothing to report.

2) The output does not change from $k = 1$ to $k = 979$. It stays $[1, 1, -1, -1]$

For $k = 980$ to $k = 983$ the output changes to $[-1, 1, -1, -1]$

From $k = 984$ to $k = 1000$ the output becomes $[-1, -1, -1, -1]$