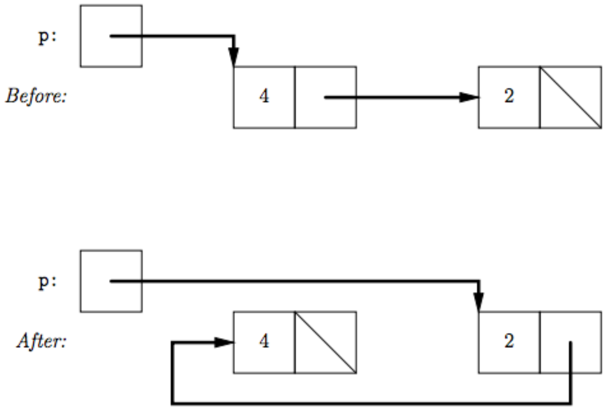
CSE 373 QuickCheck 1 Name: Evil Kevin Student ID: 1234567890

1. The picture shows two states of a `ListNode p`. In the lines below, write Java code to turn *Before* to *After*. **Do not** modify the `data` instance variable, introduce any new variables, or use the `new` keyword.



```
p.next.next = p;

p = p.next;

p.next.next = null;
```

2. Give a tight asymptotic runtime bound for `mystery` as a function of N, the length of the array, in the **best case**, **worst case**, and **overall**. Give a $\Theta(\cdot)$ bound if it exists. Otherwise, give both an $O(\cdot)$ and $\Omega(\cdot)$ bound.

```
static boolean mystery(int[] a, int target) {
    int N = a.length;
    for (int i = 0; i < N; i += 1) {
        if (a[i] == target) {
            return true;
        }
    }
    return false;
}
```

Best case $\Theta(1)$

Worst case $\Theta(N)$

Overall $\Omega(1), O(N)$