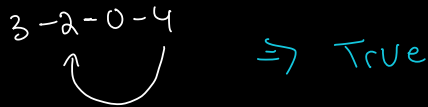


Problem: Given linked list, determine if cycle or not and determine start of cycle

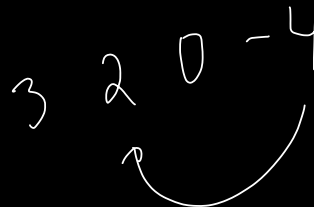
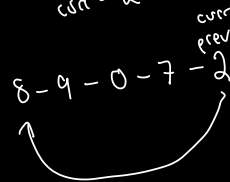
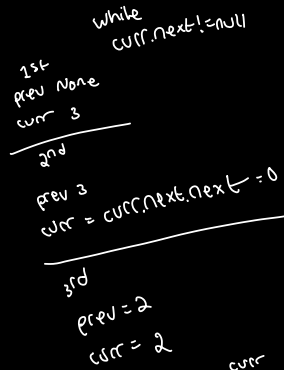
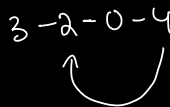
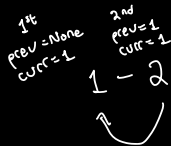
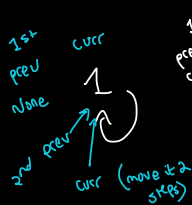


Intro:

- Verify Constraints
- Create Testcases

Optimal:

- Brainstorming & Pattern Observations



- Pseudocode

Technique: Tortoise & Hare

2 pointers traverse thru list, tortoise moves one step and hare moves 2 steps every iteration.

When the tortoise == hare -> cycle

Otherwise, if hare.next reaches null then there can't be a cycle

Getting the start of the loop:

Initialize 2 pointers (one at head, one at place where hare == tortoise)

iterate thru list moving each one step until (p1 == p2) and that is the start cycle node

- Write code
- Run through testcases
- Analyze time and space complexity

Time: $O(n)$

Space: $O(1)$

