Math Questions

**Things to know:**

* Common series sums (for Big O analysis)
* Probability knowledge
* Permutations, combinations

**Common Series Sums**

|  |  |
| --- | --- |
| **Series** | **Result** |
|  | O(log n) |
|  | O(n^2) |
|  | O(1) |

**Probability**

* Probability = # of successful events / # of total events
* That knowledge should be enough!

**Permutations and Combinations**

* Permutations – order matters
  + O(n!) permutations of length n of a set of n numbers
  + Permutations of (1, 2, 3) of length 2:
    - 1, 2
    - 2, 1
    - 1, 3
    - 3, 1
    - 2, 3
    - 3, 2
* Combinations – order does not matter
  + Combinations of (1, 2, 3) of length 2:
    - 1, 2
    - 1, 3
    - 2, 3

**Practice Questions**

1. Compute the integer square root of a given number.

ex: sqrt(8) 🡪 ~2.8 🡪 return 2

1. Given two LinkedLists representing integers, return a LinkedList representing the sum.

ex:

list1 = 1 🡪 2 🡪 3

list2 = 4 🡪 5 🡪 6

return 123 + 456 = 579 = 5 🡪 7 🡪 9

1. Reverse the digits given integer.

ex: reverse(123) 🡪 321