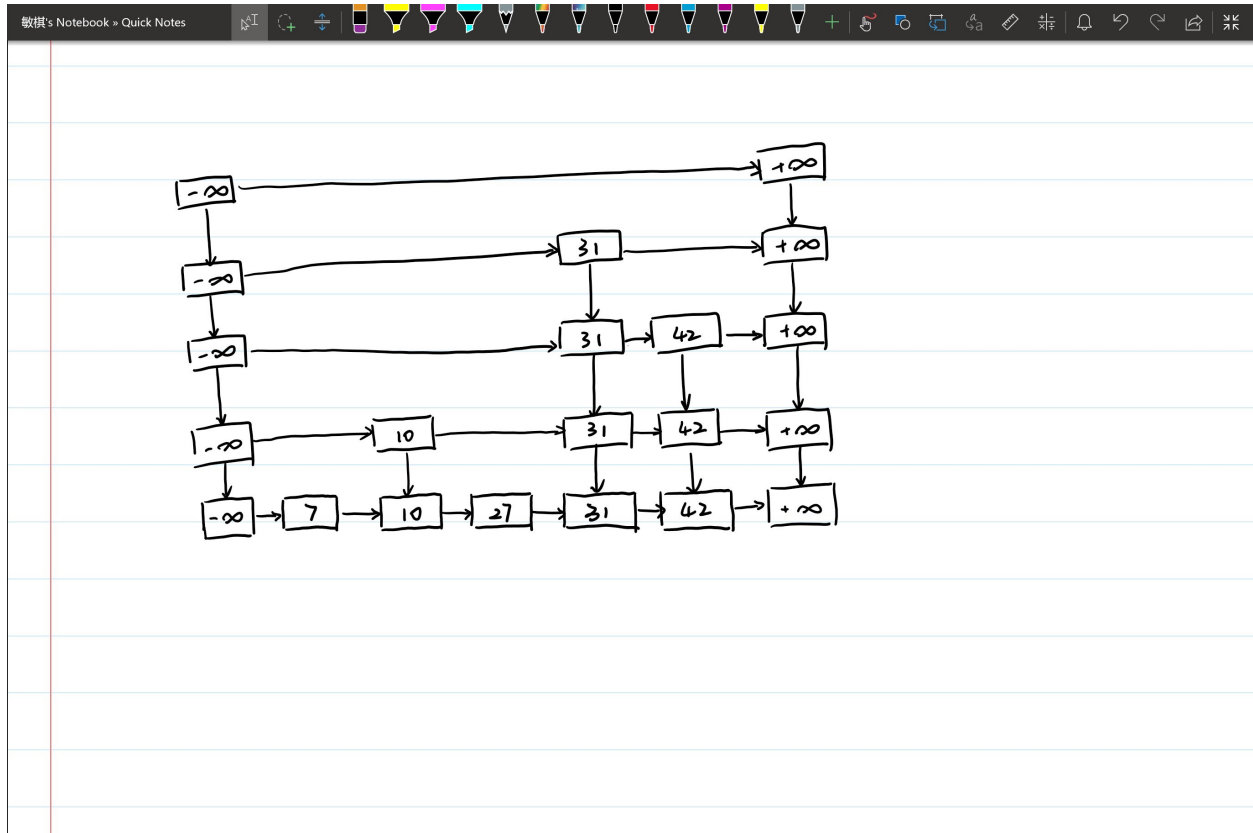


a)

Problem 7

Key	7	42	27	31	10
Height	0	2	0	3	1



b)

A tower of exactly height 3 means that we roll the die, get three 6's consecutively, and at the 4-th time, we get something else.

So the probability should be $\underbrace{\frac{1}{6}^3}_{3 \text{ times of } 6} * \underbrace{\frac{5}{6}}_{4\text{th time of else}} = \frac{5}{1296} \approx 0.00386$

c)

For each key, the probability of increasing the height of tower by 1 is $\frac{1}{6}$

Therefore, for the 1316-key-skiplist, the expected height of tower should be $\log_6 1316$