6) Suppose we start with n sets, each containing a distinct element.

a) Show that if u unions are performed, then no set contains more than u + 1 elements.

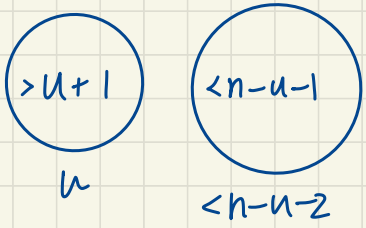
b) Show that at most $n - 1$ unions can be performed before the number of sets becomes 1.

(b) every time do union . can let the number of set reduce 1

so. do (n−1) time union can let the number of set reduce (n−1)

∴ n−(n−1)=1(set) ※

(a) Assume the do u union and contains a set more than u+1 elements



by result (b) . a set contain (<n−u−1) elements need to do at most (n−u−2) times union to become one set

∴ n−u−2+u=n−2 ≠ n−1

⇒ the assume is wrong