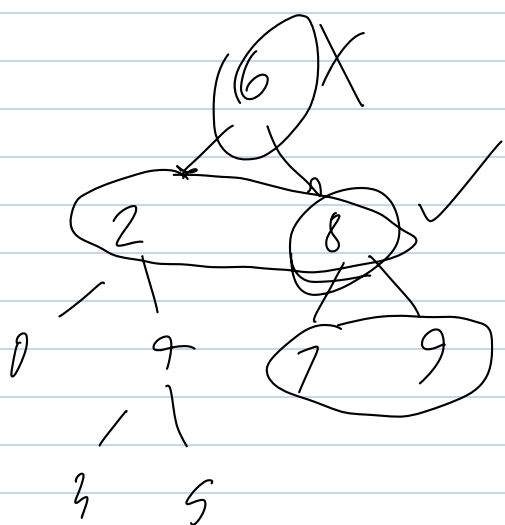


LCA



$$P = 2, q = 8$$

6 is only common ancestor

$$\rightarrow 6$$

$$P = 7, q = 7$$

8 is common ancestor

8 is leaf

$$P = 7, q = 6$$

if p and $q < 6 \rightarrow$ look left tree

if p and $q > 6 \rightarrow$ look at right tree

if $p < 6$ and $q > 8 \rightarrow 6$ is LCA

what if p or q is 6? $\rightarrow 6$ is LCA ($q=6, p=2$)

6 is ancestor of itself and 2

time $O(\log n) \rightarrow$ height of tree
space $O(1)$