Problem 2 =

$n/(2^{2k})=1$

$T(n)=T(n/(2^4)+1)+1$

$T(n)=T(n/2^6)+2$

$T(n)=T(n/2^8)+3$

$T(n)=T(n/2^{10})+4$

$n/2^{2k}=1$

$O(\log 2n)$