Recurrence Practise

if code: give recurrence + solution.
if recurrence: Solve.
you need only determine the asymptotic behavior.

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

$a = 1$
$b = 2$ $\lg_2(1) = 0$ const
vs
1
same.

$$\boxed{\lg(n)}$$

$T(n) = 4(T(n/4)) + c$

$a = 4$
$b = 4$
$\lg_4 4 = 1$

$n > c$

$4 \cdot c$

$16 \cdot c$ 0000 0000 0000 0000

$\lg_4 n$ levels.

$$\boxed{n}$$
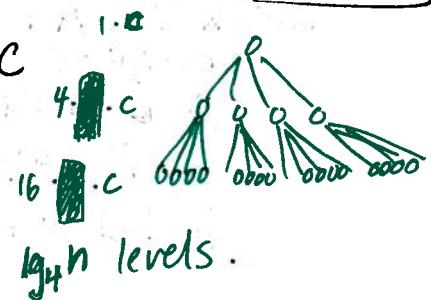
$T(n) = 2T(n/2) + n^2$

$a = 2$
$b = 2$ $\lg_2 2 = 1$ n vs n^2

$$\boxed{n^2}$$

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

$a = 2$
$b = 4$ $\lg_4 2 = \frac{1}{2}$ $\sqrt{n}$ vs n

$$\boxed{n}$$

$T(n) = T(n-3) + 4n$

$$\boxed{n^2}$$

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

$$\boxed{n}$$