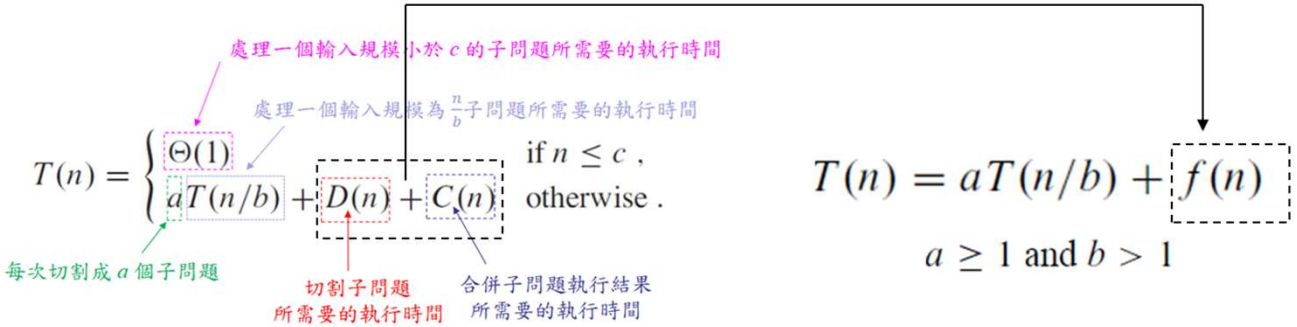
練習

- T(n) = T(n/2) + T(n/4) + T(n/8) + n，求 T(n) = O(?) (94 台大資工)
- 使用 Master Method 來求此時間函數 $T(n) = 3T(n/4) + cn^2$

Master Method



1. If $f(n) = O(n^{\log_b a - \epsilon})$ for some constant $\epsilon > 0$, then $T(n) = \Theta(n^{\log_b a})$.
2. If $f(n) = \Theta(n^{\log_b a})$, then $T(n) = \Theta(n^{\log_b a} \lg n)$.
3. If $f(n) = \Omega(n^{\log_b a + \epsilon})$ for some constant $\epsilon > 0$, and if $af(n/b) \le cf(n)$ for some constant $c < 1$ and all sufficiently large n, then $T(n) = \Theta(f(n))$. ■

Step 1. 計算 $\log_b{}^a$
Step 2. 比較 $\log_b{}^a$ 和 $f(n)$ ，若不等於需要找 ϵ