f_n：　Fbnc数. $f_n = f_{n-1} + f_{n-2}$

DP

非齐次通解 = 齐次通解 + 非齐特解

①互异：$a_n = A_1 r_1^n + A_2 r_2^n + \cdots$

A_1, A_2为常数，r为根

②重根：$a_n = (A_{11} + A_{12} n + \cdots + A_{1m} n^{m-1}) r_1^n$

m为r_1的重数

③$r = \alpha \pm \beta i$ 复根部分！

$\rho = \sqrt{\alpha^2 + \beta^2}$，$\theta = \arctan(\frac{\beta}{\alpha})$，

$r = \rho(\cos\theta + i\sin\theta)$

$\bar{r} = \rho(\cos\theta - i\sin\theta)$

$a_n = A_1 \rho^n \cos n\theta + B \cdot \rho^n \sin n\theta$

$a_n = \sim + f(n)$? → $f(n) = P_{(n)} \cdot S^n$（$P_{(n)}$：n的多项式）→ 常

- S不是r，(n次式)×S^n
- S是r，m重r，n^m(n次式)S^n

Generating Function:

对 $a_0, \cdots, a_k$,

有: $G(x)=\sum_{k=0}^{\infty} a_k x^k = a_0+a_1x+a_2x^2+\cdots$

① $f(x)+g(x)=\sum_{k=0}^{\infty}(a_k+b_k)x^k$

② convolution 卷积: $f(x)\cdot g(x)=\sum_{k=0}^{\infty}\left(\sum_{i=0}^{k} a_i b_{k-i}\right)x^k$

应用 ★ 见作业009