

기초수식 8.

$$T(n) = T(n-1) + 1/n, T(1)=1$$

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

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

$$= T(n-k) + 1/(n-k+1) + \dots + 1/n \quad (n-k=1 \text{ 대입})$$

$$= T(1) + 1/2 + 1/3 + \dots + 1/n$$

$$= \sum_{k=1}^n 1/k$$

$$< 1 + \int_1^n 1/x dx$$

$$= 1 + \log n$$

$$= O(\log n)$$

기초수식 1.

$$T(n) = T(n-1) + 1, T(0)=1$$

$$T(n) = T(n-1) + 1$$

$$= T(n-k) + k$$

$$= T(0) + n$$

$$= 1 + n$$

$$= O(n)$$