

by 4-8.

$$T(1) = 1.$$

$$T(n) = T(n-1) + \frac{1}{n}$$

$$T(n-1) = T(n-2) + \frac{1}{n-1}$$

$$T(n-2) = T(n-3) + \frac{1}{n-2}$$

⋮

$$T(n-k+1) = T(n-k) + \frac{1}{n-k+1}$$

↓

$$\boxed{n-k=1} \uparrow \text{228103}$$

$$T(n) = T(1) + \frac{1}{n} + \frac{1}{n-1} + \frac{1}{n-2} + \dots + \frac{1}{2} \quad \text{229}$$

$$= 1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \dots + \frac{1}{n} \leq 1 + \frac{1}{2} + \frac{1}{2} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} \quad \text{479}$$

$$\dots \underbrace{\frac{1}{n} \dots \frac{1}{n}}_n$$

$$= n \lg n.$$

$$T(n) \approx n \lg n.$$