

## 1. EXERCISES

- (1) Prove that  $p(n, x) = p(n - 1, x - 1) + p(n - x, x)$ .
- (2) Let  $b_n := \frac{n^{k-1}}{k!(k-1)!}$ . Prove that  $\lim_{n \rightarrow \infty} \frac{\frac{1}{k!} \left( n + \frac{k(k-1)}{2} - 1 \right)}{b_n}$ .
- (3) Prove that  $\lim_{n \rightarrow \infty} \frac{\frac{1}{k!} \binom{n-1}{k-1}}{b_n}$ .