1.10 Counting principles and the generalised binomial theorem

Checklist

What you should know

By the end of this subtopic you should be able to:

- apply the addition and multiplication principles to solve counting problems
- use the permutations formula to find the number of ways to arrange (where order is important) k distinct objects out of a set of n distinct objects, where $k \leq n$
- use the combinations formula to find the number of ways to select (where order is not important) k distinct objects out of a set of n distinct objects, where $k \leq n$
- write out a specified number of terms for the binomial expansion of $(a + bx)^n$ where $n \in \mathbb{Q}$
- determine the interval of convergence for the binomial expansion of $(a + bx)^n$ where $n \in \mathbb{Q}$.