

# Combinatorics



**28**

Pigeon-hole and  
double counting 195

**29**

Tiling rectangles 207

**30**

Three famous theorems  
on finite sets 213

**31**

Shuffling cards 219

**32**

Lattice paths and determinants 229

**33**

Cayley's formula  
for the number of trees 235

**34**

Identities versus bijections 241

**35**

The finite Kakeya problem 247

**36**

Completing Latin squares 253

*"A melancholic Latin square"*