

Counting Compositions and Functions

1. How many ways can you write 6 as a sum of positive integers, where order matters?
2. How many ways can you write n as a sum of positive integers, where order matters?
3. How many ways can you write 10 as a sum of 3 positive integers, where order matters?
4. How many ways can you write the positive integer n as a sum of k positive integers, where order matters?
5. How many ways can you write the positive integer n as a sum of 1's and 2's, where order matters?
6. How many ways can you write the positive integer n as a sum of k integers, each taken from the set $\{0, 1, 2\}$, where order matters?
7. How many functions are there from an m -element set to an n -element set?
8. How many bijective functions are there from an m -element set to an n -element set?
9. How many injective functions are there from an m -element set to an n -element set?
10. How many surjective functions are there from an m -element set to an n -element set?