

Maths of the Day

The partition zeta function $\zeta_P(\{s\}^k)$ is defined to be the sum over all partitions λ of fixed length $l(\lambda) = k \geq 0$

$$\zeta_P(\{s\}^k) = \sum_{l(\lambda)=k} \frac{1}{n_\lambda^s} \quad (\operatorname{Re}(s) > 1)$$

with $\zeta_P(\{s\}^0) = 1$, $\zeta_P(\{s\}^1) = \zeta(s)$ and

$$\zeta_P(\{s\}^2) = \frac{\zeta(2s) + \zeta_P(\{s\}^1)^2}{2}.$$