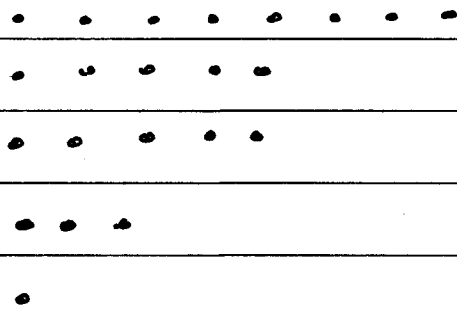


Example The Ferrers graph of  $8+5+5+3+1$  is



Defn: Given a partition  $\lambda = (\lambda_1, \lambda_2, \dots, \lambda_r)$

we form a new partition

$$\lambda' = (\lambda'_1, \lambda'_2, \dots, \lambda'_s) \quad (\text{where } s = \lambda_1)$$

called conjugate of  $\lambda$  by reading the columns of the Ferrers graph of  $\lambda$ .

Example  $\lambda = (8, 5, 5, 3, 1)$

$$\lambda' = (5, 4, 4, 3, 3, 1, 1, 1)$$

Theorem Let  $\lambda$  be a partition. Then

- (i)  $|\lambda| = |\lambda'|$ .
- (ii)  $(\lambda')' = \lambda$ .
- (iii) The map  $\lambda \mapsto \lambda'$  is a bijection of the set of pns of  $n$  to itself.

Theorem Let  $m, n \geq 1$ .

The number of partitions of  $n$  with at most  $m$  parts = The number of partitions of  $n$  in which no part exceeds  $m$ .