$\exists$ representation of S_n on F^n
defined by $\rho(g)(a_1, \cdots, a_n) = (a_{g(1)}, \cdots, a_{g(n)})$

V is called irreducible if it has no none-trivial subrepresentations.
V is called complete reducible if V is a direct sum of irreducible rep.

Maschke's Theorem.
$p = \mathrm{char}(k)$ If $p \nmid |G|$ or $p = 0$
$\Rightarrow$ $\forall$ subrepresentation of V has a completementary representation

V representation of G over $\mathbb{C}$
$\exists$ $\langle \cdot, \cdot \rangle$ on V s.t. $\langle gv_1, gv_2 \rangle = \langle v_1, v_2 \rangle$

if $p \nmid |G|$ or $p = 0$, V is completely reducible.