

Character tables for the symmetric groups $\mathcal{S}_2$, $\mathcal{S}_3$, $\mathcal{S}_4$ and $\mathcal{S}_2 \times \mathcal{S}_2$

$\mathcal{S}_2$	(11)	(2)
$\psi^{[2]}$	1	1
$\psi^{[11]}$	2	0
$\chi^{[2]}$	1	1
$\chi^{[11]}$	1	-1

$\mathcal{S}_3$	(111)	(21)	(3)
$\psi^{[3]}$	1	1	1
$\psi^{[21]}$	3	1	0
$\psi^{[111]}$	6	0	0
$\chi^{[3]}$	1	1	1
$\chi^{[21]}$	2	0	-1
$\chi^{[111]}$	1	-1	1

$\mathcal{S}_4$	(1111)	(211)	(22)	(31)	(4)
$\psi^{[4]}$	1	1	1	1	1
$\psi^{[31]}$	4	2	0	1	0
$\psi^{[22]}$	6	2	2	0	0
$\psi^{[211]}$	12	2	0	0	0
$\psi^{[1111]}$	24	0	0	0	0
$\chi^{[4]}$	1	1	1	1	1
$\chi^{[31]}$	3	1	-1	0	-1
$\chi^{[22]}$	2	0	2	-1	0
$\chi^{[211]}$	3	-1	-1	0	1
$\chi^{[1111]}$	1	-1	1	1	-1

$\mathcal{S}_2 \times \mathcal{S}_2$	(11)(11)	(11)(2)	(2)(11)	(2)(2)
$[2] \times [2]$	1	1	1	1
$[2] \times [11]$	1	-1	1	-1
$[11] \times [2]$	1	1	-1	-1
$[11] \times [11]$	1	-1	-1	1