CHARACTER TABLE FOR C_{nh} POINT GROUP

Character table for C_{2h} point group

	E	C_2 (z)	i	σ_h	Linear Functions, Rotations	Quadratic
A_g	1	1	1	1	R_z	x^2, y^2, z^2, xy
B_g	1	-1	1	-1	R_x, R_y	xz, yz
A_u	1	1	-1	-1	z	
B_u	1	-1	-1	1	x, y	

Character table for C_{3h} point group

	E	$C_3(z)$	$(C_3)^2$	σ_h	S_3	$(S_3)^5$	Linear functions, Rotations	Quadratic
A'	1	1	1	1	1	1	R_z	x^2+y^2, z^2
E'	1 1	e e^*	e^* e	1 1	e e^*	e^* e	x+iy x-iy	(x^2-y^2, xy)
A''	1	1	1	-1	-1	-1	z	
E''	1 1	e e^*	e^* e	-1 -1	-e $-e^*$	$-e^*$ -e	R_x+iR_y R_x-iR_y	(xz, yz)

$e = \exp(2\pi i/3)$

Character table for C_{4h} point group

	E	$C_4(z)$	C_2	$(C_4)^3$	i	$(S_4)^3$	σ_h	S_4	Linear Functions, Rotations	Quadratic
A_g	1	1	1	1	1	1	1	1	R_z	x^2+y^2, z^2
B_g	1	-1	1	-1	1	-1	1	-1		x^2-y^2, xy
E_g	1	i	-1	-i	1	i	-1	-i	R_x+iR_y	
	1	-i	-1	i	1	-i	-1	i	R_x-iR_y	(xz, yz)
A_u	1	1	1	1	-1	-1	-1	-1	z	
B_u	1	-1	1	-1	-1	1	-1	1		
E_u	1	i	-1	-i	-1	-i	1	i	x+iy	
	1	-i	-1	i	-1	i	1	-i	x-iy	

Character table for C_{5h} point group

	E	C_5	$(C_5)^2$	$(C_5)^3$	$(C_5)^4$	σ_h	S_5	$(S_5)^7$	$(S_5)^3$	$(S_5)^9$	Linear Functions, Rotations	Quadratic
A'	1	1	1	1	1	1	1	1	1	1	R_z	x^2+y^2, z^2
E'$_1$	1	e	e^2	e^{2*}	e^*	1	e	e^2	e^{2*}	e^*	x+iy	
	1	e^*	e^{2*}	e^2	e	1	e^*	e^{2*}	e^2	e	x-iy	
E'$_2$	1	e^2	e^*	e	e^{2*}	1	e^2	e^*	e	e^{2*}		
	1	e^{2*}	e	e^*	e^2	1	e^{2*}	e	e^*	e^2		(x^2-y^2, xy)
A''	1	1	1	1	1	-1	-1	-1	-1	-1	z	
E''$_1$	1	e	e^2	e^{2*}	e^*	-1	-e	e^{-2}	$-e^{2*}$	$-e^*$	R_x+iR_y	
	1	e^*	e^{2*}	e^2	e	-1	$-e^*$	$-e^{2*}$	e^{-2}	-e	R_x-iR_y	(xz, yz)
E''$_2$	1	e^2	e^*	e	e^{2*}	-1	e^{-2}	$-e^*$	-e	$-e^{2*}$		
	1	e^{2*}	e	e^*	e^2	-1	$-e^{2*}$	-e	$-e^*$	e^{-2}		

$e = \exp(2\pi i/5)$

Character table for C_{6h} point group

	E	$C_6(z)$	C_3	C_2	$(C_3)^2$	$(C_6)^5$	i	$(S_3)^5$	$(S_6)^5$	σ_h	S_6	S_3	Linear Functions, Rotations	Quadratic
A_g	1	1	1	1	1	1	1	1	1	1	1	R_z	x^2+y^2, z^2	
B_g	1	-1	1	-1	1	-1	1	-1	1	-1	1	-1		
	1	e	$-e^*$	-1	-e	e^*	1	e	$-e^*$	-1	-e	e^*	R_x+iR_y	
E_{1g}	1	e^*	-e	-1	$-e^*$	e	1	e^*	-e	-1	$-e^*$	e	R_x-iR_y	(xz, yz)
	1	$-e^*$	-e	1	$-e^*$	-e	1	$-e^*$	-e	1	$-e^*$	-e		
E_{2g}	1	-e	$-e^*$	1	-e	$-e^*$	1	-e	$-e^*$	1	-e	$-e^*$		(x^2-y^2, xy)
A_u	1	1	1	1	1	1	-1	-1	-1	-1	-1	-1	z	
B_u	1	-1	1	-1	1	-1	-1	1	-1	1	-1	1		
	1	e	$-e^*$	-1	-e	e^*	-1	-e	e^*	1	e	$-e^*$	x+iy	
E_{1u}	1	e^*	-e	-1	$-e^*$	e	-1	$-e^*$	e	1	e^*	-e	x-iy	
	1	$-e^*$	-e	1	$-e^*$	-e	-1	e^*	e	-1	e^*	e		
E_{2u}	1	-e	$-e^*$	1	-e	$-e^*$	-1	e	e^*	-1	e	e^*		

$e = \exp(\pi i/3)$