

## E. The $D_n$ Groups

$D_2$	$E$	$C_2(z)$	$C_2(y)$	$C_2(x)$			
$A$	1	1	1	1	$z, R_z$	$x^2, y^2, z^2$	$xyz$
$B_1$	1	1	-1	-1		$xy$	$z^3, z(x^2 - y^2)$
$B_2$	1	-1	1	-1		$xz$	$yz^2, y(3x^2 - y^2)$
$B_3$	1	-1	-1	1		$yz$	$xz^2, x(x^2 - 3y^2)$

  

$D_3$	$E$	$2C_3$	$3C_2$	(x axis coincident with $C_2$ )			
$A_1$	1	1	1	$z, R_z$	$(x, y), (R_x, R_y)$	$x^2 + y^2, z^2$	$x(x^2 - 3y^2)$
$A_2$	1	1	-1			$z^3, y(3x^2 - y^2)$	
$E$	2	-1	0			$(xz^2, yz^2), [xyz, z(x^2 - y^2)]$	

  

$D_4$	$E$	$2C_4$	$C_2(=C_4^2)$	$2C_2'$	$2C_2''$	(x axis coincident with $C_2'$ )	
$A_1$	1	1	1	1	1	$z, R_z$	$x^2 + y^2, z^2$
$A_2$	1	1	1	-1	-1		$z^3$
$B_1$	1	-1	1	1	-1		$xyz$
$B_2$	1	-1	1	-1	1		$z(x^2 - y^2)$
$E$	2	0	-2	0	0	$(x, y), (R_x, R_y)$	$(xz, yz)$ $(xz^2, yz^2), [x(x^2 - 3y^2), y(3x^2 - y^2)]$

  

$D_5$	$E$	$2C_5$	$2C_5^2$	$5C_2$	(x axis coincident with $C_2$ )		
$A_1$	1	1	1	1	$z, R_z$	$(x, y), (R_x, R_y)$	$x^2 + y^2, z^2$
$A_2$	1	1	1	-1			$z^3$
$E_1$	2	$2 \cos 72^\circ$	$2 \cos 144^\circ$	0			$(xz, yz)$
$E_2$	2	$2 \cos 144^\circ$	$2 \cos 72^\circ$	0			$(x^2 - y^2, xy)$

  

$D_6$	$E$	$2C_6$	$2C_3$	$C_2$	$3C_2'$	$3C_2''$	(x axis coincident with $C_2'$ )	
$A_1$	1	1	1	1	1	1	$z, R_z$	$x^2 + y^2, z^2$
$A_2$	1	1	1	1	-1	-1		$z^3$
$B_1$	1	-1	1	-1	1	-1		$x(x^2 - 3y^2)$
$B_2$	1	-1	1	-1	-1	1		$y(3x^2 - y^2)$
$E_1$	2	1	-1	-2	0	0	$(x, y), (R_x, R_y)$	$(xz, yz)$
$E_2$	2	-1	-1	2	0	0	$(x^2 - y^2, xy)$	$(xz^2, yz^2)$ $[xyz, z(x^2 - y^2)]$