

**Character Table 3**
**The Groups  $D_n$  ( $n = 2, 3, 4, 5, 6$ )**

$D_2$ (222)	$E$	$C_2(z)$	$C_2(y)$	$C_2(x)$		
A	1	1	1	1		$x^2, y^2, z^2$
B <sub>1</sub>	1	1	-1	-1	$z, R_z$	$xy$
B <sub>2</sub>	1	-1	1	-1	$y, R_y$	$xz$
B <sub>3</sub>	1	-1	-1	1	$x, R_x$	$yz$

$D_3$ (32)	$E$	$2C_3$	$3C_2$			
A <sub>1</sub>	1	1	1			$x^2 + y^2, z^2$
A <sub>2</sub>	1	1	-1	$z, R_z$		
E	2	-1	0	$(x, y)(R_x, R_y)$	$(x^2 - y^2, 2xy)$	$(xz, yz)$

$D_4$ (422)	$E$	$2C_4$	$C_2(=C_4^2)$	$2C_2'$	$2C_2''$		
A <sub>1</sub>	1	1	1	1	1		$x^2 + y^2, z^2$
A <sub>2</sub>	1	1	1	-1	-1	$z, R_z$	
B <sub>1</sub>	1	-1	1	1	-1		$x^2 - y^2$
B <sub>2</sub>	1	-1	1	-1	1		$xy$
E	2	0	-2	0	0	$(x, y)(R_x, R_y)$	$(xz, yz)$

$D_5$	$E$	$2C_5$	$2C_5^2$	$5C_2$		
A <sub>1</sub>	1	1	1	1		$x^2 + y^2, z^2$
A <sub>2</sub>	1	1	1	-1	$z, R_z$	
E <sub>1</sub>	2	$2 \cos 72^\circ$	$2 \cos 144^\circ$	0	$(x, y)(R_x, R_y)$	$(xz, yz)$
E <sub>2</sub>	2	$2 \cos 144^\circ$	$2 \cos 72^\circ$	0		$(x^2 - y^2, 2xy)$

$D_6$ (622)	$E$	$2C_6$	$2C_3$	$C_2$	$3C_2'$	$3C_2''$	
A <sub>1</sub>	1	1	1	1	1	1	$x^2 + y^2, z^2$
A <sub>2</sub>	1	1	1	1	-1	-1	$z, R_z$
B <sub>1</sub>	1	-1	1	-1	1	-1	
B <sub>2</sub>	1	-1	1	-1	-1	1	
E <sub>1</sub>	2	1	-1	-2	0	0	$(x, y)(R_x, R_y)$ $(xz, yz)$
E <sub>2</sub>	2	-1	-1	2	0	0	$(x^2 - y^2, 2xy)$