

$P3_1$

No. 144

 C_3^2
 C_3^3

No. 145

 $P3_2$

$P3_1$		No. 144		C_3^2		C_3^3		No. 145		$P3_2$	
Axes	Coordinates	Wyckoff Positions		Wyckoff Positions	Axes	Coordinates		Wyckoff Positions	Axes	Coordinates	
I Maximal translationengleiche subgroups											
[3] $P1$ (1)		$3a$		$3 \times 1a$	[3] $P1$ (1)						
II Maximal klassengleiche subgroups											
Enlarged unit cell, isomorphic											
[2] $P3_2$ (145)	a, b, 2c $x, y, \frac{1}{2}z; +(0, 0, \frac{1}{2})$	$2 \times 3a$		[2] $P3_1$ (144)	a, b, 2c $x, y, \frac{1}{2}z; +(0, 0, \frac{1}{2})$						
[p] $P3_2$ (145)	a, b, pc $x, y, \frac{1}{p}z; +(0, 0, \frac{u}{p})$ $p = \text{prime} = 3n - 1; u = 1, \dots, p - 1$	$p \times 3a$		[p] $P3_1$ (144)	a, b, pc $x, y, \frac{1}{p}z; +(0, 0, \frac{u}{p})$ $p = \text{prime} = 3n - 1; u = 1, \dots, p - 1$						
[7] $P3_1$	a, b, 7c $x, y, \frac{1}{7}z; \pm(0, 0, \frac{1}{7}); \pm(0, 0, \frac{2}{7}); \pm(0, 0, \frac{3}{7})$	$7 \times 3a$		[7] $P3_2$	a, b, 7c $x, y, \frac{1}{7}z; \pm(0, 0, \frac{1}{7}); \pm(0, 0, \frac{2}{7}); \pm(0, 0, \frac{3}{7})$						
[p] $P3_1$	a, b, pc $x, y, \frac{1}{p}z; +(0, 0, \frac{u}{p})$ $p = \text{prime} = 6n + 1; u = 1, \dots, p - 1$	$p \times 3a$		[p] $P3_2$	a, b, pc $x, y, \frac{1}{p}z; +(0, 0, \frac{u}{p})$ $p = \text{prime} = 6n + 1; u = 1, \dots, p - 1$						
[3] $P3_1$	2a+b, -a+b, c $\frac{1}{3}(x+y), \frac{1}{3}(-x+2y), z; \pm(\frac{1}{3}, \frac{2}{3}, 0)$	$3 \times 3a$		[3] $P3_2$	2a+b, -a+b, c $\frac{1}{3}(x+y), \frac{1}{3}(-x+2y), z; \pm(\frac{1}{3}, \frac{2}{3}, 0)$						
[3] $P3_1$	2a+b, -a+b, c $\frac{1}{3}(x+y) + \frac{1}{3}, \frac{1}{3}(-x+2y), z; \pm(\frac{1}{3}, \frac{2}{3}, 0)$	$3 \times 3a$		[3] $P3_2$	2a+b, -a+b, c $\frac{1}{3}(x+y) + \frac{1}{3}, \frac{1}{3}(-x+2y), z; \pm(\frac{1}{3}, \frac{2}{3}, 0)$						
[3] $P3_1$	2a+b, -a+b, c $\frac{1}{3}(x+y) - \frac{1}{3}, \frac{1}{3}(-x+2y), z; \pm(\frac{1}{3}, \frac{2}{3}, 0)$	$3 \times 3a$		[3] $P3_2$	2a+b, -a+b, c $\frac{1}{3}(x+y) - \frac{1}{3}, \frac{1}{3}(-x+2y), z; \pm(\frac{1}{3}, \frac{2}{3}, 0)$						
[7] $P3_1$	3a+b, -a+2b, c $\frac{1}{7}(2x+y), \frac{1}{7}(-x+3y), z; \pm(\frac{1}{7}, \frac{3}{7}, 0); \pm(\frac{3}{7}, \frac{2}{7}, 0); \pm(\frac{5}{7}, \frac{1}{7}, 0)$	$7 \times 3a$		[7] $P3_2$	3a+b, -a+2b, c $\frac{1}{7}(2x+y), \frac{1}{7}(-x+3y), z; \pm(\frac{1}{7}, \frac{3}{7}, 0); \pm(\frac{3}{7}, \frac{2}{7}, 0); \pm(\frac{5}{7}, \frac{1}{7}, 0)$						
[7] $P3_1$	3a+2b, -2a+b, c $\frac{1}{7}(x+2y), \frac{1}{7}(-2x+3y), z; \pm(\frac{2}{7}, \frac{3}{7}, 0); \pm(\frac{3}{7}, \frac{1}{7}, 0); \pm(\frac{1}{7}, \frac{5}{7}, 0)$	$7 \times 3a$		[7] $P3_2$	3a+2b, -2a+b, c $\frac{1}{7}(x+2y), \frac{1}{7}(-2x+3y), z; \pm(\frac{2}{7}, \frac{3}{7}, 0); \pm(\frac{3}{7}, \frac{1}{7}, 0); \pm(\frac{1}{7}, \frac{5}{7}, 0)$						
[p] $P3_1$	qa+rb, -ra+(q-r)b, c $\frac{1}{p}((q-r)x+ry), \frac{1}{p}(-rx+qy), z; +(\frac{ur}{p}, \frac{uq}{p}, 0)$ $p = \text{prime} = q^2 - qr + r^2 = 6n + 1;$ $q, r = 1, 2, \dots; q > r; u = 1, \dots, p - 1$	$p \times 3a$		[p] $P3_2$	qa+rb, -ra+(q-r)b, c $\frac{1}{p}((q-r)x+ry), \frac{1}{p}(-rx+qy), z; +(\frac{ur}{p}, \frac{uq}{p}, 0)$ $p = \text{prime} = q^2 - qr + r^2 = 6n + 1;$ $q, r = 1, 2, \dots; q > r; u = 1, \dots, p - 1$						
[4] $P3_1$	2a, 2b, c $\frac{1}{2}x, \frac{1}{2}y, z; +(\frac{1}{2}, 0, 0); +(0, \frac{1}{2}, 0); +(\frac{1}{2}, \frac{1}{2}, 0)$	$4 \times 3a$		[4] $P3_2$	2a, 2b, c $\frac{1}{2}x, \frac{1}{2}y, z; +(\frac{1}{2}, 0, 0); +(0, \frac{1}{2}, 0); +(\frac{1}{2}, \frac{1}{2}, 0)$						
[p^2] $P3_1$	pa, pb, c $\frac{1}{p}x, \frac{1}{p}y, z; +(\frac{u}{p}, \frac{v}{p}, 0)$ $p = \text{prime} = 3n - 1; u, v = 1, \dots, p - 1$	$p^2 \times 3a$		[p^2] $P3_2$	pa, pb, c $\frac{1}{p}x, \frac{1}{p}y, z; +(\frac{u}{p}, \frac{v}{p}, 0)$ $p = \text{prime} = 3n - 1; u, v = 1, \dots, p - 1$						