

**Example 2.8.1** addition table for  $\text{GF}(9) = \mathbb{Z}_3[y]/(y^2 + 1)$

	0	1	2	y	y+1	y+2	2y	2y+1	2y+2
0	0	1	2	y	y+1	y+2	2y	2y+1	2y+2
1	1	2	0	y+1	y+2	y	2y+1	2y+2	2y
2	2	0	1	y+2	y	y+1	2y+2	2y	2y+1
y	y	y+1	y+2	2y	2y+1	2y+2	0	1	2
y+1	y+1	y+2	y	2y+1	2y+2	2y	1	2	0
y+2	y+2	y	y+1	2y+2	2y	2y+1	2	0	1
2y	2y	2y+1	2y+2	0	1	2	y	y+1	y+2
2y+1	2y+1	2y+2	2y	1	2	0	y+1	y+2	y
2y+2	2y+2	2y	2y+1	2	0	1	y+2	y	y+1

**Example 2.8.1** multiplication table for  $\text{GF}(9) = \mathbb{Z}_3[y]/(y^2 + 1)$

	0	1	2	y	y+1	y+2	2y	2y+1	2y+2
0	0	0	0	0	0	0	0	0	0
1	0	1	2	y	y+1	y+2	2y	2y+1	2y+2
2	0	2	1	2y	2y+2	2y+1	y	y+2	y+1
y	0	y	2y	2	y+2	2y+2	1	y+1	2y+1
y+1	0	y+1	2y+2	y+2	2y	1	2y+1	2	y
y+2	0	y+2	2y+1	2y+2	1	y	y+1	2y	2
2y	0	2y	y	1	2y+1	y+1	2	2y+2	y+2
2y+1	0	2y+1	y+2	y+1	2	2y	2y+2	y	1
2y+2	0	2y+2	y+1	2y+1	y	2	y+2	1	2y