Examples of Rings

RING	ELEMENT	UNITY	COMMUTATIVE	INTEGRAL DOMAIN	FIELD	CHAR
$\mathbb{Z}$	k	1	yes	yes	no	0
$\mathbb{Z}_n$, n composite	k	1	yes	no	no	n
$\mathbb{Z}_p$, p prime	k	1	yes	yes	yes	p
$\mathbb{Z}[x]$	$a_n x^n + \cdots + a_1 x + a_0$ $(a_i \in \mathbb{Z})$	$f(x) = 1$	yes	yes	no	0
$n\mathbb{Z}$, $n > 1$	nk	none	yes	no	no	0
$\mathbb{Z} \times \mathbb{Z}$	(a, b) $(a, b \in \mathbb{Z})$	$(1, 1)$	yes	no	no	0
$M_2(\mathbb{Z})$	$\begin{pmatrix} a & b \\ c & d \end{pmatrix}$ $(a, b, c, d \in \mathbb{Z})$	$\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$	no	no	no	0
$M_2(2\mathbb{Z})$	$\begin{pmatrix} 2a & 2b \\ 2c & 2d \end{pmatrix}$ $(a, b, c, d \in \mathbb{Z})$	none	no	no	no	0
$\mathbb{Z}[i]$	$a + bi$ $(a, b \in \mathbb{Z})$	1	yes	yes	no	0
$\mathbb{Z}_2[i]$	$a + bi$ $(a, b \in \mathbb{Z}_2)$	1	yes	yes	yes	2
$\mathbb{Z}[\sqrt{2}]$	$a + b\sqrt{2}$ $(a, b \in \mathbb{Z})$	1	yes	yes	no	0
$\mathbb{Q}[\sqrt{2}]$	$a + b\sqrt{2}$ $(a, b \in \mathbb{Q})$	1	yes	yes	yes	0

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