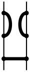
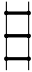
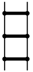
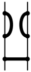
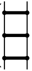
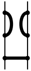
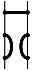
$$\mathcal{J}_3 = X$$  $$+ X^2$$  $$+$$ 

$$\mathcal{J}_3^2 =$$  $$+ X^2$$  $$+ X$$ 

In the basis

( ,  ,  ,  , )

this acts by right multiplication as

$$\begin{pmatrix} 1 & X & X^2 & 0 & 0 \\ 0 & -X^2 & -X - X^3 & 0 & 0 \\ 0 & X & 1 + X^2 & 0 & 0 \\ 0 & 0 & 0 & -X^2 & -X - X^3 \\ 0 & 0 & 0 & X & 1 + X^2 \end{pmatrix}$$

and by left multiplication by

$$\begin{pmatrix} 1 & X & X^2 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & -X^3 & 0 & 1 & 0 \\ 0 & 0 & -X^3 & 0 & 1 \end{pmatrix}$$