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Given that the set

$$S = \left\{ \begin{bmatrix} x & y \\ o & z \end{bmatrix} \middle| \ x, y, z \ \in \right\}$$

is a ring with respect to matric addition and multiplication, show that

$$I = \left\{ \begin{bmatrix} a & o \\ b & o \end{bmatrix} \middle| \ a, b \ \in \right\}$$

is an ideal of S.