principal rings

## Definition

Let $A$ be a ring. A left ideal $\mathfrak{a} \subset A$ is called principal if

$$\mathfrak{a} = Aa$$

for some $a \in A$.

## Definition

Let $A$ be a non-zero commutative ring. It is called a principal ring if every ideal is principal.

# Question

Let $k$ be a field and consider $A = M_2(k)$, the ring of all square matrices of size 2 with entries in $k$. Let $\mathfrak{a} \subset A$ be the right ideal consisting of matrices whose first row is zero. Is $\mathfrak{a}$ principal?