

(Extra)² Questions for MA 106

Aryaman Maithani

Semester: Spring 2021

Latest update: 2021-03-11 18:06:57+05:30

These are questions that came out of some discussions.

1. A **nonempty** subset $J \subset \mathbb{R}^{n \times n}$ is said to be a *two-sided ideal* if it has the following properties:
 - (a) (Closed under addition) For all $A, B \in J$, we have $A + B \in J$,
 - (b) (Absorption) For all $A \in J$ and $C \in \mathbb{R}^{n \times n}$, we have $AC, CA \in J$.

Show that the ideals of $\mathbb{R}^{n \times n}$ are precisely $\{O\}$ and $\mathbb{R}^{n \times n}$.