

55 Prove

(a) $\mathcal{S} = \emptyset \sim \mathcal{S}$

(b) $A \in \mathcal{S} = A : \sim \mathcal{S}$

After trying the question, scroll down to the solution.

$$\begin{aligned}
 (a) \quad & \mathcal{S} = \emptyset \sim S \\
 \mathcal{S} &= \mathcal{S} \\
 &= \mathcal{S}\{\sim S\} \\
 &= \emptyset \sim S
 \end{aligned}$$

a set law
another set law

$$\begin{aligned}
 (b) \quad & A \in \mathcal{S} = A : \sim S \\
 \mathcal{S} &= A \in \mathcal{S} \\
 &= A \in \{\sim S\} \\
 &= A : \sim S
 \end{aligned}$$

a set law
another set law