

Exercises

E8.b.2 [OHM] Let's consider on \mathbb{R} the family $\tau_+ = \{(a, +\infty) : a \in \mathbb{R}\} \cup \{\emptyset, \mathbb{R}\}$. Show that it is a topology. Is it Hausdorff? Calculate closure, interior, boundary and derivative of these sets:

$$\begin{aligned} & \{0\} \quad , \quad \{0, 1\} \quad , \quad [0, 1] \quad , \quad (0, 1) \quad , \\ & [0, \infty) \quad , \quad (-\infty, 0] \quad , \quad (0, \infty) \quad , \quad (-\infty, 0) \quad . \end{aligned}$$

Solution 1. [OHN]