

MATE 4000 assignment 4

15. Do the nonempty, infinite subsets of \mathbf{N} form a filtre base?
16. A family $(A_i)_{i \in I}$ of subsets of a topological space X is said to be locally finite if for each $x \in X$ there is a neighbourhood V of x such that $V \cap A_i = \emptyset$ for all but a finite number of indices $i \in I$. Show that the union of a locally finite family of closed subsets of X is closed in X .
17. Exercise 2 of Chapter II p. 130 in Dixmier.
18. Exercise 3 of Chapter II p. 130 in Dixmier.
19. Exercise 4 of Chapter II p. 130 in Dixmier.