



planetmath.org

Math for the people, by the people.

Alexandrov one-point compactification

Canonical name	AlexandrovOnepointCompactification
Date of creation	2013-03-22 13:47:54
Last modified on	2013-03-22 13:47:54
Owner	yark (2760)
Last modified by	yark (2760)
Numerical id	9
Author	yark (2760)
Entry type	Definition
Classification	msc 54D35
Synonym	one-point compactification
Synonym	Alexandroff one-point compactification
Synonym	Aleksandrov one-point compactification
Synonym	Alexandrov compactification
Synonym	Aleksandrov compactification
Synonym	Alexandroff compactification
Related topic	Compactification

The *Alexandrov one-point compactification* of a non-compact topological space X is obtained by adjoining a new point ∞ and defining the topology on $X \cup \{\infty\}$ to consist of the open sets of X together with the sets of the form $U \cup \{\infty\}$, where U is an open subset of X with compact complement.

With this topology, $X \cup \{\infty\}$ is always compact. Furthermore, it is Hausdorff if and only if X is Hausdorff and locally compact.