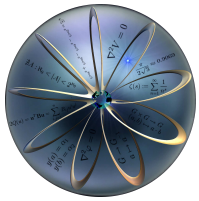

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indiscrete topology

Canonical name	IndiscreteTopology
Date of creation	2013-03-22 12:48:11
Last modified on	2013-03-22 12:48:11
Owner	mathwizard (128)
Last modified by	mathwizard (128)
Numerical id	20
Author	mathwizard (128)
Entry type	Definition
Classification	msc 54-00
Synonym	trivial topology
Synonym	coarse topology

If X is a set and it is endowed with a topology defined by

$$\tau = \{X, \emptyset\}$$

then X is said to have the *indiscrete topology*.

Furthermore τ is the coarsest topology a set can possess, since τ would be a subset of any other possible topology. This topology gives X many properties:

- Every subset of X is sequentially compact.
- Every function to a space with the indiscrete topology is continuous.
- X is path connected and hence connected but is arc connected only if X is uncountable or if X has at most a single point. However, X is both hyperconnected and ultraconnected.
- If X has more than one point, it is not metrizable because it is not Hausdorff. However it is pseudometrizable with the metric $d(x, y) = 0$.