Section 3

Define equivalence relation.

A relation $<$ on a set $A$ is called a simple order (or linear order of order relation) if

- $a$ is an immediate predecessor of $b$ (or $b$ is an immediate successor of $a$) if

The dictionary order relation on $A \times B$ is

$X$ has the least upper bound property if

$X$ has the greatest lower bound property if

Section 10

An ordered set $(A, <)$ is well-ordered if

Give an example of a countable well-ordered set.

Chapter 2

Define the following:

- Basis
- Topology generated by a basis $\mathcal{B}$
- Subbasis
- Topology generated by subbasis $\mathcal{S}$
- Standard topology on $\mathbb{R}$
- Lower limit topology on $\mathbb{R}$
- Discrete topology
- Indiscrete topology
- co-finite topology (= finite complement topology)
- co-countable topology (= countable complement topology)
- Order topology

Section 3

Define partition.

How does an equivalence relation determine a partition.

How does a partition determine an equivalence relation.