

Title of the book used for the course : Introduction to Topology,
by Crump Baker .

We will cover chapters: 2,3,4,6 and 8 only. Chapter 1 is preliminary and you are required to read it

Chapter 2: Topological Spaces

2-1 : 2,4,5,6,7

2-2: 1,2,3,4,6,7,8

2-3: 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15

2-4: 1,2,3,4,5,6,7,10,12,13,14,15,16,17

2-5: 1,2,3,4,5,6,7,9,10

Chapter 3 :Subspaces and Continuity

3-1: 1,2,3,4,5,6,8,9,13

3-2: 1,2,3,4,6,8,9,10,12,13,14,18

3-3: 1-2-3-4-7-8-11-13-14-15-20-21-22

Chapter 4 :Product Spaces

4-1: 1,2,3,4,5,6,8,11

Chapter 6 :compactness

6-1: 1,2,3,4,5,6,7,8,11,12,13,14,15,17,18,19,20

6-2: 1,2,3,4,5,6,7

Chapter 8 : Metric Spaces

8-1: 1(a,d,f),2,3(b),5,6,10,11

And the following question: Let X be a non-empty set with metric d . Solve the following:

1)For any $x, y \in X$.Let $d_1(x, y) = \min(1, d(x, y))$, show that d_1 is a metric on X .

2)For any $x, y \in X$.Let $d_2(x, y) = \frac{d(x, y)}{1+d(x, y)}$, show that d_2 is a metric on X .

8-2: 2,5,7,8,9,10,11,12,13

And the following question:

Let $d : X \times X \rightarrow \mathfrak{R}$ be a metric on X . Prove that for any $x, y, z \in X$

$$|d(x, y) - d(y, z)| \leq d(x, z)$$

8-3: 1,2,3,4,5,7,8,12,14,15,16