

## REVIEW:

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Read Chap I. (Mostly done in 3770)

Learn basic notation 1.3, 1.4

must know Least Upperbound Property 1.10  
must know Thm 1.19  $\mathbb{R}$  exists.  
must know Thm 1.20 Archimedean Property  
Density of Rationals  
must know Thm 1.37

Learn the proofs of d, e, f.

d: pages 4-6 of Jan 18, 2019 notes  
e: in the book.

## Chap II: Part I

must know Def<sup>n</sup> 2.4 finite, infinite, countable, uncountable

must know Well-orderedness Property of  $\mathbb{N}$  (a)  
Principle of Mathematical Induction (b)

Read notes (from 3770)  $\left\{ \begin{array}{l} \text{Thm: (a)} \Rightarrow \text{(b)} \\ \text{Thm: LUB property} \Rightarrow \text{(a)} \end{array} \right\}$  Jan 23, 2019

Thms for Cardinalities Must know statements:

Thm 2.8

Thm 2.12 + Corollary  $\left. \vphantom{\text{Thm 2.12 + Corollary}} \right\}$  p 26-30

Thm 2.13 + corollary  $\left. \vphantom{\text{Thm 2.13 + corollary}} \right\}$   $\mathbb{Q}$  is countable

\*  $\left[ \begin{array}{l} \text{Thm 2.14 + Corollary: } \mathbb{R} \text{ is uncountable} \\ \text{Learn "Diagonal" proof.} \end{array} \right.$  p 30 of the book  
Jan 28, 2019 notes p 1-4.

# Chap II Metric Spaces

Defn 2.15, Examples Jan 28, 2019 p 4-5  
Exercise 1.11 p 44 (done in class)

Defn 2.18 All must be known  
Neighborhood, open, closed, limit pt, .....

Defn 2.26  $E'$ , closure

Basic Facts: Must know statements & how to apply

Thm 2.19

Thm 2.20

Thm 2.22

Thm 2.23 ← learn proof

Thm 2.24 ← learn proof.

Thm 2.27.

Thm 2.28

p 34 of Feb 4, 2019 notes

read Feb 6, 2019 notes  
There a few more  
basic facts about  
closures, interiors.

—————  
up to Compactness