Short list of things to know for Exam #2

Definitions

(1) Subsequence
(2) Cauchy sequence
(3) Limit of a function
(4) Continuous at a point
(5) Continuous on an open interval
(6) Continuous on a closed interval

Theorems

(1) Principle of induction
(2) Theorem 14.6 (convergence and subsequences)
(3) Theorem 15.4 (sequence with subsequences converging to every real number)
(4) Cantor's Theorem
(5) Bolzano-Weierstrass
(6) Main corollary of Bolzano-Weierstrass
(7) Cauchy if and only if convergent
(8) Theorem 19.4 (limits and sequences)
(9) Theorem 21.1 (limits and algebra)
(10) Squeeze Theorem for functions
(11) Theorem 22.5 (continuity and limits)
(12) Theorem 23.1 (continuity and algebra)
(13) Theorem 23.2 (continuity and compositions)
(14) Intermediate Value Theorem
(15) Boundedness Theorem
(16) Extreme Value Theorem

Key skills

(1) Proofs by induction
(2) Relationship between convergence/boundedness of sequences and convergence of subsequences
(3) Using the Cauchy property to show a sequence converges
(4) Using the $\varepsilon - \delta$ definition to compute limits
(5) Using algebra/squeeze theorem to compute limits
(6) Using the $\varepsilon - \delta$ definition to show continuity
(7) Using algebra/compositions to show continuity
(8) Applying the $\varepsilon - \delta$ definitions of limits and continuity
(9) Applying the Intermediate Value Theorem