

- Know basic definitions.
- Be able to show certain numbers cannot be rational.
- Be able to prove that \mathbb{Q} is countable. Be able to prove that \mathbb{R} is not countable.
- Be able to do simple induction proofs.
- Be able to prove the triangle inequality.
- Be able to prove basic facts about ordered fields.
- Be able to prove simple sequences converge or diverge from the definition of a limit.
- Be able to prove less simple sequences converge or diverge using limit theorems.
- Be able to prove series converge or diverge using series theorems.
- Be able to prove these ...
 - [9.1] Convergent sequence are bounded.
 - [9.2] $\lim ks_n = k \lim s_n$.
 - [9.3] $\lim s_n + t_n = \lim s_n + \lim t_n$.
 - [9.10] $s_n \rightarrow \infty \implies 1/s_n \rightarrow 0$.
 - [10.9] Convergent sequences are Cauchy.
 - [11.3] Subsequences of a convergent sequence converges to the same limit.
 - [14.6] Direct Limit Comparison Test.
 - [14.7] Absolute Convergence \implies Convergence.
 - Geometric Series Test and Formula.
 - [15.1] p -Series Test
- Any homework problem is fair game.