

1. (Problem 6 from Rudin, "Principles of Mathematical Analysis", Chapter 2)

Assume that (X, d) is a metric space, and $E \subset X$ is a nonempty subset. Denote by E' the limit (or accumulation) points of E .

- (a) Prove that E' is closed.
- (b) Prove that E and \overline{E} have the same limit points.
- (c) Do E and E' always have the same limit points?