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?