

# Analysis I

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September 23, 2024

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## 1 Closure of a Set

**Definition 1.** Let  $(X, \rho)$  be a metric space where  $E \subseteq X$ . Denote  $\overline{E}$  as the **closure**.

$$\overline{E} = \bigcap_{E \subseteq F} F \text{ and } F \text{ is closed.}$$

And since, the intersection of any number of (including infinite) closed sets is closed.

**Note.** It's obvious that if  $E$  is closed, then  $E = \overline{E}$ .