Unit II. Lessons distribution and self-assesment questions.

- Lesson 1. Sections 1; 2; 3.1, 3.2, 3.3.

  1. In $\mathbb{R}^2$, is the distance between two points the length of the segment that joins them?
  2. The concept of "ball" only makes sense in three-dimensional space. True or false?
  3. A ball may or may not contain its center. True or false?
  4. Are the endpoints of the interval (a, b) points of closure of it? And those of $[a, b]$?

- Lesson 2. Sections 3.4, 3.5, 3.6; 4.1, 4.2, 4.3, 4.4.

  1. Let be the interval $(2, 5)$. Find examples of interior, exterior and boundary points.
  2. Define the closure set.
  3. Which points belongs to the closure but not to the derived set?
  4. Is it possible for a closure point to be interior? And for an interior point to be isolated?

- Lesson 3. Sections 4.5, 4.6; 5.1, 5.2.

  1. Does a boundary point of A belong to both the interior and exterior of A?
  2. Find a closed set that is not an interval.
  3. Is the union of open sets an open set? And the intersection?
  4. The interval $[a, b)$ is both an open and a closed set. True or false?

- Lesson 4. Sections 5.3, 5.4; 6.

  1. In $\mathbb{R}$, a compact set is a closed and bounded interval. True or false?
  2. The distances d_1, d_2 and d_∞ between two points of $\mathbb{R}$ are all equal. True or false?
  3. Can we write a point $a \in \mathbb{R}$ as a closed interval? And as an open interval?
  4. If a bounded set $S \subset \mathbb{R}$ has infinitely many points, must one of them (al least) be an accumulation point?