1. True/False: In a normed vector space \((X, \| \cdot \|)\), the map \(x : X \to \mathbb{R}\) defined by \(x \mapsto \sqrt{1 + \|x\|^2}\) is continuous.

2. True/False: When considered on \(\mathbb{R}^n\), the norms \(\| \cdot \|_\infty\) and \(\| \cdot \|_1\) imply the same topology, but they are not equivalent.

3. True/False: All subspaces of the (sequence-) \(l^2\)-space are complete.

4. True/False: Define \(f_z(x) = \|x - z\|\) for arguments \(x\) in some normed vector space \(X\). Then there is a solution to \(x = \arg \max_{x \in M} f_z(x)\) for any compact subset \(M \subseteq X\).

5. True/False: All linear operators on \(C[0,1]\) are continuous.

6. True/False: If there is a Schauder basis, then the space is separable.

7. True/False: \(L^2[0,1]\) is separable.

8. True/False: The convergence of a Schauder expansion is always in the absolute sense.

9. True/False: If the space is separable, then there is a Schauder basis.

10. True/False: A closed and bounded subset of a metric space is compact.