Book Problems. (MacCluer) 3.10; 3.16; 3.18; 3.20a, b, c;

Problem 1. Let l_c^∞ consist of sequences in l^∞ which are eventually 0. (In other words, these are sequences with compact support. In other other words, these are sequences with finitely many nonzero entries.)

- Is l_c^∞ a closed subset of l^∞?

- Is l_c^∞ a convex subset of l^∞?

- Define a function $f : l_c^\infty \to \mathbb{R}$ by $f(x) = \sum_{i=1}^{\infty} |x_i|$. Is f a convex function? Is f a continuous function?

Problem 2. Is c, the Banach space of convergent sequences with the sup norm, separable?