

COMPACT AND LIMITED OPERATORS

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ABSTRACT. Let $T : Y \rightarrow X$ be a bounded linear operator between two normed spaces. We characterize compactness of T in terms of differentiability of the Lipschitz functions defined on X with values in another normed space Z . Furthermore, using a similar technique we can also characterize finite rank operators in terms of differentiability of a wider class of functions but still with Lipschitz flavour. As an application we obtain a Banach-Stone-like theorem. On the other hand, we give an extension of a result of Bourgain and Diestel related to limited operators and cosingularity.