A MEAN VALUE THEOREM FOR METRIC SPACES

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ABSTRACT. We present a form of the Mean Value Theorem (MVT) for a continuous function \( f \) between metric spaces, connecting it with the possibility to choose the \( \varepsilon \mapsto \delta(\varepsilon) \) relationship of \( f \) in a homeomorphic way. We also compare our formulation of the MVT with the classic one when the metric spaces are actually Banach spaces. As a consequence, we derive a version of the Mean Value Property for measure spaces that also possesses a compatible metric structure. This is a joint work with professor Paulo Carvalho Neto, from UNICAMP.