

Let X be a metric space and x_0 in X . Define a function $f: X \rightarrow \mathbb{R}$ (all real numbers) by $f(x) = d(x, x_0)$. Show that f is continuous.

HINT: Prove the variant of the triangle inequality which says $|d(x, z) - d(y, z)| < d(x, y)$ for any x, y, z in X