Karel Hrbacek* (khrbacek@sci.ccny.cuny.edu). A nonstandard approach to length and area. Preliminary report.

In 1975, P. Loeb famously gave a nonstandard construction of the Lebesgue measure in \( \mathbb{R}^n \). I consider a generalization of this construction to \( k \)-dimensional, translation and rotation invariant (outer) measures in \( \mathbb{R}^n \), for \( k \leq n \). The procedure requires (at least) two “levels of standardness.” (Received December 04, 2011)