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George F McNulty* (mcnulty@math.sc.edu), Department of Mathematics, University of South Carolina, Columbia, SC 29208. *There is no algorithm for deciding whether an equation is compatible with the real line.* Preliminary report.

An equation is **compatible** with the real line provided the operation symbols in the equation can be interpreted as continuous operations on the real line in such a way that the equation holds true in the algebra resulting from equipping \mathbb{R} with these continuous operations. We limit our attention to the signature of ring theory expanded by two additional one-place operation symbols. For this signature, we prove that there is no algorithm which upon input of an equation of the signature will determine whether it is compatible with the real line. This result is a refinement of recent work of Walter Taylor. (Received September 20, 2006)