

Willmore, Tom J.**The sign of the curvature tensor in Riemannian geometry.** (English) Zbl 1117.53017
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Two valid definitions of the curvature operators in Riemannian geometry in two well-known reference texts [*A. L. Besse*, *Einstein manifolds*. Berlin etc.: Springer-Verlag (1987; [Zbl 0613.53001](#))] and [*Sh. Kobayashi, K. Nomizu*, *Foundations of differential geometry. I*, New York-London: Interscience Publishers (1963; [Zbl 0119.37502](#))] differ in sign. In fact, they use different conventions for the order of the indices in the local expressions of the tensors associated with the curvature tensor. In this short note, the author clarifies the confusion by comparing components of the $(3, 1)$ curvature tensors in local coordinates. Then, the components of the $(4, 0)$ curvature tensors and the Ricci curvature tensors are compared.

Reviewer: [Andrew Bucki \(Edmond\)](#)**MSC:**[53B20](#) Local Riemannian geometryCited in 1 Document**Keywords:**[Curvature tensor](#)