Recently, a certain type of $\mathcal{N} = 1$ supergravity, the so-called no-scale supergravity [1], is studied as a model of the cosmological inflation [2]. One of the main motivations in the article is to explore this gravity theory by calculating scattering amplitudes. The no-scale theory is characterized by a simple form of the Kähler structure and, correspondingly, the amplitudes can be expressed in terms of geometric quantities. In this article the authors apply normal-coordinates methods [3, 4] to supergravity theories and explicitly calculate four-point amplitudes of no-scale supergravity with some superpotentials. The calculations are carried out by use of the Riemann normal coordinates and the Kähler normal coordinates. In various cases both of these methods lead to the same amplitudes at the extremal points of the superpotentials. These analytic and numeric results would be useful for future applications of no-scale supergravity. For further studies of these amplitudes including tadpole contributions, see also the follow-up article [5].

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