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Gauss composition with level structure.

The Gauss composition law famously describes the class group of an order in a quadratic field purely by an operation on classes of binary quadratic forms modulo integer linear transformations. We extend the notion of Gauss composition to describe the ray class group of a quadratic order modulo a conductor. This is done by imposing a stricter equivalence relation on binary quadratic forms. (Received September 15, 2020)