Title: Two generator $p$-groups of nilpotency class 2 and their conjugacy classes

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We give a classification of 2-generator $p$-groups of nilpotency class 2. Using this classification, we give a formula for the number of such groups of order $p^n$ in terms of the partitions of $n$ of length 3, and find formulas for the number and size of their conjugacy classes.

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