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Square Roots of 2×2 Matrices.

The square root of a 2×2 matrix A is a matrix B such that $B^2 = A$. We show how the diagonalization method and the Cayley-Hamilton Theorem can be used to find the square root of a 2×2 matrix. Along the way, we can determine what matrices have square roots and how to count them. (Received September 25, 2017)